987

DOE/EIA-0455(87)

Energy Information Administration

Historical Plant Cost and Annual Production Expenses for Selected Electric Plants 1987

READEX FICHE best copy available

E3.17/4-2:

Contacts

General information about this document may be obtained from the NEIC at (202) 586-8800. Further information on the report may be obtained from Mary J. Hutzler at (202) 586-9863, Director of the Electric Power Division; or Neal Moerschel at (202) 586-6516, Chief of the Data Systems Branch of the Electric Power Division. Technical information may be obtained from Lawrence Prete at (202) 586-6535 or Elsie Bess at (202) 586-6534 in the Data Systems Branch. Specific information about the data may be obtained from Jorge Luna-Camara at (202) 586-6553 of the Data Systems Branch.

This publication is available from the Superintendent of Documents, U. S. Government Printing Office (GPO). Information about purchasing this or other Energy Information Administration (EIA) publications may be obtained from the GPO or the EIA's National Energy Information Center (NEIC). Questions on energy statistics should be directed to the NEIC by mail, telephone, or telecommunications device for the deaf (TDD). Addresses, telephone numbers, and hours appear below.

National Energy Information Center, EI-231
Energy Information Administration
Forrestal Building, Room 1F-48
Washington, DC 20585
(202) 586-8800
TDD (202) 586-1181
Hours: 8:00-5:00, M-F, Eastern Time

Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402
(202) 783-3238

Cover: The Allatoona hydroelectric power plant located in Georgia and operated by the U.S. Army Corps of Engineers.

Released for Printing May 8, 1989

DOE/EIA-0455(87)
Distribution Category UC-98

Historical Plant Cost and Annual Production Expenses for Selected Electric Plants 1987

Energy Information Administration
Office of Coal, Nuclear, Electric and Alternate Fuels
U. S. Department of Energy
Washington, DC 20585

This report was prepared by the Energy Information Administration, the independent statistical and analytical agency within the Department of Energy. The information contained herein should not be construed as advocating or necessarily reflecting any policy position of the Department of Energy or any other organization.

Contents

Page

Introduction 1

Overview 7

Hydroelectric Plants 17

Fossil-Fueled Steam-Electric Plants 101

Gas Turbine Electric Plants 205

Nuclear Steam-Electric Plants 225

Appendices

A. List of Plants by Utility Within State 247
B. Alphabetical List of Hydroelectric Plants 257
C. Alphabetical List of Fossil-Fueled Steam-Electric Plants 263
D. Alphabetical List of Gas-Turbine Electric Plants 269
E. Alphabetical List of Nuclear Steam- Electric Plants 273
F. Technical Notes 277

Glossary 285

Tables

Page

1. Comparison of Plants Covered in the Summary Statistics in this Report to the Universe of Plants, in the United States, 1987 3
2. U.S. Net Generation by Prime Mover, 1975-1987 7
3. Annual Fossil-Fueled Steam-Electric Net Generation and Fuel Consumption in the United States, 1975-1987 8
4. Annual Gas-Turbine Net Generation and Fuel Consumption in the United States, 1975-1987 8
5. Historical Plant Cost for Plants with Initial Commercial Operation in 1987, by Plant 9
6. Average Components of Capital Charge 11
7. Generation Charges 11
8. Average Charges, Weighted by Net Generation 12
9. Average Annual Production Expenses for Non-Federal Conventional Hydroelectric Plants, Weighted by Net Generation, 1982-1987 18
10. Average Annual Production Expenses for Federal Conventional Hydroelectric Plants, Weighted by Net Generation, 1985-1987 18
11. Hydroelectric Plant Costs and Production Expenses by Plant, 1987 19
12. Average Annual Production Expenses, Weighted by Net Generation, for Fossil-Fueled Steam-Electric Plants, by Capability Range, 1982-1987 103
13. Average Annual Production Expenses, Weighted by Net Generation, for Fossil-Fueled Steam-Electric Plants, by Type of Fuel Used, 1982-1987 103
14. Average Heat Rates for Fossil-Fueled Steam-Electric Plants in the United States, 1938, 1948, and 1956-1987 104
15. Annual Historical Plant Cost for New Fossil-Fueled Steam-Electric Plants, 300-Megawatt Capacity or Larger, 1975-1987 105
16. Fossil-Fueled Steam-Electric Plant Cost and Production Expenses by Plant, 1987 106
17. Average Annual Production Expenses for Gas-Turbine Electric Plants, Weighted by Net Generation, 1982-1987 206
18. Gas Turbine Electric Plant Cost and Production Expenses by Plant, 1987 207
19. Average Annual Production Expenses for Nuclear Steam-Electric Plants, Weighted by Net Generation, 1982-1987 226
20. Nuclear Steam-Electric Plant Cost and Production Expenses by Plant, 1987 227

Illustrations

Page

1. Production Expenses by Prime Mover, 1987 9
2. Nuclear and Coal-fired Generation Charges, 1987 13
3. Components of Fossil-Fueled Steam-Electric Plant Weighted Average Production Expenses, 1987 101
4. Fossil-Fueled Steam-Electric Plant Weighted Average Production Expenses, by Energy Source, 1987 102
5. Components of Nuclear Steam-Electric Plant Weighted Average Production Expenses, 1987 225

Introduction

Background

Historical Plant Cost and Annual Production Expenses for Selected Electric Plants 1987 is prepared by the Electric Power Division; Office of Coal, Nuclear, Electric and Alternate Fuels (CNEAF); Energy Information Administration (EIA).

Data presented here are intended to provide information to the electric utility industry, educational institutions, Federal, State and local governments, and the general public. These data are collected and published to fulfill data collection and dissemination responsibilities of the Energy Information Administration (EIA), as specified in the Federal Energy Administration Act (Public Law 93-275), as amended.

Historical Plant Cost and Annual Production Expenses for Selected Electric Plants 1987, initially published in 1982, is a composite of two predecessor publications, *Hydroelectric Plant Construction Cost and Annual Production Expenses* and *Thermal-Electric Plant Construction Cost and Annual Production Expenses. Thermal-Electric Plant Construction Cost and Annual Production Expenses* (initially published in 1979) contained information on both steam-electric and gas-turbine electric plant construction costs and annual production expenses. These data were initially published by the Federal Power Commission (FPC) in *Steam-Electric Plant Construction Cost and Annual Production Expenses 1938-1947*, and *Gas-Turbine Electric Plant Construction Cost and Annual Production Expenses 1972. Hydroelectric Plant Construction Cost and Annual Production Expenses 1953-1956*, the first in its series, was also published by the FPC. In 1977, the three publications became the responsibility of the EIA.

The section of tables for historical plant cost, is a summary of the utility's net cumulative-to-date actual outlays of expenditures for land, buildings, and equipment in service. The historical plant cost is the initial investment in the plant plus the costs of all plant additions, less the value of retirements. Thus, historical plant cost often includes expenditures made over several years. Dollars cited represent the amounts recorded in the utility's electric plant accounts. No adjustment has been made to these costs to make them comparable among different facilities or to express them in values representing constant purchasing power.

The utility company's annual operating expenses presented for producing electric power at each plant include plant operations and maintenance costs. The cost of fuel used in the production of the electric power is included for all but hydroelectric plants. The operating expenses do not include annual fixed charges on plant cost (capital carrying costs) such as interest on debt, return on equity, depreciation, amortization expenses, and taxes. Consequently, these annual operating expenses do not represent the total cost of producing electric power at these plants. Capital carrying costs are reported in the utility's statement of income for the reporting year, but are not included in the data reported at the plant level.

Operating characteristics of each plant include the capacity, capability, generation and demand on the plant. Physical characteristics include the number of units in the plant, the average number of employees, and other information relative to the plant's operation. Tables in the hydroelectric plant section include hydraulic information.

Impact of Accounting Practices on Plant Costs

CWIP and AFUDC

Regulatory accounting methods for utility power plant construction projects have a major impact on historical plant costs. The accounting and the financing costs during the construction phase vary significantly. Construction work in progress (CWIP) and allowance for funds used during construction (AFUDC) are discussed to provide a more complete understanding of the methods of accounting for the data reported in the historical plant cost sections. CWIP may be entered into a utility's rate base before a project goes into commercial operation. To the extent CWIP is entered into the utility's rate base, the cost of financing the construction project, AFUDC, is not added to the capital cost of the plant. The difference in accounting practices of CWIP and AFUDC can result in two plants with equal construction and financing costs but different values in financial records.

Plant Sale and Leaseback

In an effort to mitigate the initial burden on ratepayers of the early capital carrying charges associated with new generating plants, and to improve their overall financial condition, a number of utilities have undertaken sale and leaseback arrangements. Essentially, the utility sells the plant to an individual or group of financial institutions and immediately enters into an operating lease arrangement for the facility. The purchasing parties get the tax benefits associated with the ownership of the asset and are assured an annual lease payment to recover their investment in the plant and provide a return thereon. The utility levelizes the capital carrying charges into the equivalent of a mortgage payment, instead of paying higher capital costs initially and lower ones at a later date. Utilities report their annual lease payment as rents in the Uniform System of Accounts. This account is included in the annual operation and maintenance expenses presented in this publication and, in several instances, is responsible for unusually high production expenses. Rents represent about 4.1 percent of the total production expenses in this report. Conversely, unusually low capital costs will be associated with these plants. No adjustment in reporting production expenses was made to adjust for this fairly recent activity by utilities.

Accounting For Phase-In Plants

The cost of new generating plants has increased for some utilities, conventional rate-making methods would result in significantly higher rates when the plant goes into service. In response, some regulators have instituted phase-in plans to moderate the initial rate increase. In August 1987, the Financial Accounting Standards Board issued Statement of Financial Accounting Standards No.92 (SFAS No. 92) -- Regulated Enterprises -- Among other things, SFAS No.92 allows for the continued capitalization of part of the capital costs of the plant, an allowance for earning on shareholders' investments and the deferral of depreciation expenses as long as a number of criteria are met. Assuming a utility is operating under a phase-in plan that met the criteria, the utility could continue to capitalize allowable deferred costs associated with a generating plant subsequent to the plant entering service; hence increasing the capital costs reported after the plant entered service, even though no new construction has taken place and decreasing the capital costs reported at the time of entering service. No attempt has been made to identify or segregate the costs associated with phase-in plans for the generating plants included in this report that may be subject to such plans.

Accounting For Abandonments and Disallowances of Plant Costs

According to the statement of financial accounting standards (issued in December 1986) when part of the cost of a completed plant is disallowed for ratemaking purposes and a reasonable estimate of the disallowance can be made, this estimated amount will be deducted from the cost of the plant as a loss. Several plants reported in this publication have been or are facing significant disallowances of costs. No attempt has been made to identify the plants effected.

Coverage

This report presents the data for plants selected mainly on the basis of net generation. Data for plants that are for jointly-owned represent 100 percent of plant unless indicated otherwise. (Footnotes indicate where plant data are reported for less than 100 percent ownership.) The plants included in this report are a subset of those plants reported by respondents of FERC Form 1 and Form EIA-412 surveys.

This selection of plants is limited to those reported by major privately-owned (investor-owned) and municipally-owned (including State authorities and public power districts) electric utilities. (Section 1 of the "Technical Notes" describes who is required to submit these surveys.) Data reported for Federally owned utilities are only included for 1 pumped storage plant, and 2 nuclear plants owned and operated by TVA, and 20 conventional hydroelectric plants operated by the U.S. Army Corps of Engineers. Other Federally owned plants are not included.

In the 1982, the selection of plants for *Historical Plant Cost and Annual Production Expenses for Selected Electric Plants* included all nuclear and pumped storage plants where data are available, fossil-steam plants that generated in the top 80 percent of total generation, all plants that were newly added in that year, and a group of arbitrarily chosen small fossil-steam plants. Each year plants that become operational are added to the selection regardless of their net generation, to present data on recently constructed plants, and retired plants are deleted. (Section 2 of "Technical Notes" describes the procedure used to make the initial selection of the plants).

The 1987 selection of plants includes 320 hydroelectric (including pumped-storage), 378 fossil-fueled steam-electric plants (including 9 combined-cycled plants), 57 gas-turbine plants, and 63 nuclear steam-electric plants.

Hydroelectric plants included in this report produced 67 percent of the 1987 total U.S. net generation from hydroelectric plants, as reported on Form EIA-759, "Monthly Power Plant Report." Fossil-fueled steam-electric plants included in this report produced 80 percent of the 1987 total net generation from fossil-fueled steam-electric plants; gas-turbine electric plants produced 51 percent; and nuclear steam-electric plants produced 98 percent. The coverage for each of these plant types, compared to all plants in the United States, is summarized in Table 1.

Organization

The Overview section of the publication provides an overview of the national universe of electric utility production. Tables and text present annual U.S. net generation by prime mover and fossil-fueled generation and fuel consumption from 1975 to the current reporting year. Summary statistics for the selection of plants included in this report, with a subset for plants starting commercial operation during the reporting year, are also presented.

A special feature appears in the Overview on costs of nuclear and coal-fired generation. This includes a discussion of a simplified approach to allocating the utility's total capital carrying costs to the generation function at the plant level, to which the production expenses are added to assess total regulatory costs of generation at the plant site.

Data on each of the plant types are contained in separate chapters of this report. Data presented in the detailed plant-level tables are arranged alphabetically by State, utility, and plant. Included are data on net generation, capacity (including net capability), historical plant cost, production expenses, fuel consumption, physical and operating plant characteristics, and other relevant statistical information for selected plants.

Five appendices (A to E), list plants by utility within a State, and provide an alphabetical list of the plants by the four types of plants which are reported. Appendix F titled, "Technical Notes," explains the method and the FERC and EIA forms used to collect the data, as well as the procedures used for plant selection and data quality control. The notes also provide an explanation of the formula used in calculating average capacity factor, cost and heat rate. Finally, ordering instructions for obtaining these data on computer listings and machine readable tapes are also included.

The Glossary Section is included to give the reader not only a clear understanding of the terms, but also the limitations of the data presented in the various chapters.

Table 1. Comparison of Plants Covered in the Summary Statistics in this Report to the Universe of Plants, in the United States, 1987

Plant Type	Total Plants - United States			Plants Covered in Summary Statistics of this Report		
	Number	Capability[1] (megawatts)	Net Generation[2] (gigawatthours)	Number	Capability[1] (megawatts)	Net Generation[2] (gigawatthours)
Hydroelectric	1,234	89,665	249,695	320	61,349	166,217
Fossil Steam	852	437,944	[3] 1,836,713	378	326,000	[3] 1,467,850
Gas-Turbine	526	44,167	[4] 16,559	57	13,049	[4] 8,392
Nuclear Steam	71	93,583	455,270	[5] 63	87,041	446,791

[1] Capability is Net Summer Capability as reported on Energy Information Administration, Form EIA-860, "Annual Electric Generator Report."

[2] Net generation is as reported on Energy Information Administration, Form EIA-759, "Monthly Power Plant Report."

[3] Fossil Steam generation includes the fossil steam portion of the 9 combined-cycle plants.

[4] Gas Turbine generation includes the gas turbine portion of the 9 combined-cycle plants.

[5] Excludes Hanford and WNP 2, which are not required to be reported on either Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others" or Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities." Also excluded are two nuclear plants, the Braidwood and the Enrico Fermi, which were not in commercial operation as of year end 1987.

Overview

The Virginia Municipal Power Plant provides cogeneration steam heat to over 31,000 customers. It is shown here under full load on a cold winter night.

Overview

Overview of Universe of Electric Utility Plants

The Nation's electric utilities produced 2,572 billion kilowatthours of electricity in 1987. This was an increase of 3.4 percent from the 2,487 billion kilowatthours produced in 1986. Fossil-fueled steam-electric plants produced 1,837 billion kilowatthours or 71 percent of the 1987 total; nuclear steam-electric plants produced 455 billion kilowatthours or 18 percent of the total; hydroelectric plants produced 250 billion kilowatthours or 10 percent of the total; and, gas-turbine plants produced 17 billion kilowatthours (less than 1 percent). The remainder includes generation mainly from geothermal and internal combustion plants. The percent distribution by prime mover of total generation from 1975 to 1987 is given below (Table 2). Tables 3 and 4 contain generation and fuel consumption from steam-electric and gas-turbine plants from 1975 to 1987.

The summer capability of U.S. electric utility plants as of December 31, 1987, was 674,144 megawatts. Of this total, 437,944 megawatts were in fossil steam-electric plants; 93,583 megawatts were in nuclear-powered plants; 89,665 megawatts were in hydroelectric plants; and 44,187 megawatts were in gas-turbine plants. The remaining 8,765 megawatts include geothermal, internal combustion, wind-powered, and solar-powered plants.

Table 2. U.S. Net Generation by Prime Mover, 1975-1987
(Percent)

Year	Fossil-Fueled Steam-Electric	Nuclear-Fueled Steam-Electric	Hydroelectric	Gas-Turbine	Other[1]
1975	73.7	9.0	15.6	1.2	0.5
1976	75.1	9.4	13.9	1.2	.4
1977	76.0	11.8	10.4	1.4	.4
1978	73.0	12.5	12.7	1.4	.4
1979	74.6	11.4	12.5	1.2	.3
1980	75.5	11.0	12.1	1.1	.3
1981	75.4	11.9	11.4	1.0	.3
1982	72.6	12.6	13.8	.6	.4
1983	71.9	12.7	14.4	.5	.4
1984	72.1	13.6	13.3	.6	.4
1985	72.0	15.5	11.4	.6	.5
1986	70.6	16.6	11.7	.6	.5
1987	71.4	17.7	9.7	.6	.6

[1] Includes internal combustion, wind, geothermal steam, wood, waste-fired steam, and solar.
Source: Energy Information Administration, Form EIA-759, "Monthly Power Plant Report," and predecessor forms.

Summary Statistics for Plants Included in this Report

Conventional hydroelectric production expenses for Federal and non-Federal plants averaged 2.13 mills per kilowatthour; average operation expenses accounted for 1.28 mills per kilowatthour and average maintenance expenses accounted for 0.84 mills per kilowatthour.[1]

Production expenses for Federal conventional hydroelectric plants averaged 1.31 mills per kilowatthour. Average operation and maintenance expenses were 0.91 mills and 0.40 mills per kilowatthour, respectively. Production expenses for non-Federal conventional hydroelectric plants averaged 2.61 mills per kilowatthour. Average operation and maintenance expenses accounted for 1.51 and 1.11 mills per kilowatthour, respectively.

---

[1] Unless otherwise noted, all average expenses, average heat rates and average capacity factors are weighted by net generation. In cases where partial data are reported for a plant, averages are weighted by the portion of net generation that is applicable.

Table 3. Annual Fossil-Fueled Steam-Electric Net Generation and Fuel Consumption in the United States, 1975-1987

Year	Net Generation Coal (10^3 kilowatthour)	Coal Consumed (10^3 short tons)	Net Generation Petroleum (10^3 kilowatthour)	Petroleum Consumed (10^3 barrels)	Net Generation Gas (10^3 kilowatthour)	Gas Consumed (10^3 thousand cubic feet)	Total Net Generation (10^3 kilowatthour)
1975	852,786,221	405,962	272,580,739	467,221	288,237,258	3,002,141	1,413,604,218
1976	944,390,993	448,371	302,172,045	514,077	283,714,308	2,934,161	1,530,277,346
1977	985,218,596	477,126	337,764,615	574,869	292,263,264	3,019,131	1,615,246,475
1978	975,742,083	481,235	344,867,045	588,319	289,671,584	2,994,371	1,610,080,712
1979	1,075,037,091	527,051	290,219,710	492,606	310,899,001	3,253,554	1,676,155,802
1980	1,161,562,368	569,274	238,248,970	401,863	326,149,097	3,422,774	1,725,960,435
1981	1,203,203,232	596,797	201,743,926	339,680	325,393,004	3,396,503	1,730,340,182
1982	1,192,004,204	593,866	144,292,858	243,537	291,375,960	3,059,891	1,627,673,022
1983	1,259,424,279	625,211	141,363,293	237,845	260,604,887	2,744,938	1,661,392,459
1984	1,341,680,752	664,399	116,765,496	197,050	283,735,887	2,949,817	1,742,182,135
1985	1,402,128,125	693,841	97,490,248	166,842	278,811,710	2,879,431	1,778,430,083
1986	1,385,831,452	685,056	133,209,800	222,500	236,484,067	2,439,675	1,755,525,319
1987	1,463,781,289	717,894	114,949,440	190,618	257,981,932	2,660,137	1,836,712,661

Notes: Totals may not equal sum of components because of independent rounding.
Source: Energy Information Administration, Form EIA-759, "Monthly Power Plant Report," and predecessor forms.

Production expenses, including fuel, averaged 22.42 mills per kilowatthour in 1987 for all fossil-fueled steam-electric plants;[2] 20.96 mills per kilowatthour for coal-burning plants; 29.57 mills per kilowatthour for plants using petroleum or gas (and no coal) as the energy source. Fuel was the predominant component of these production expenses, accounting for 82 percent of the average production expenses of all the fossil-fueled steam-electric plants, and 81 percent for coal-burning plants.

Fuel expenses for all fossil-fueled steam-electric plants averaged 18.39 mills per kilowatthour; for coal-burning plants, 16.88 mills per kilowatthour; for plants that used petroleum or gas, 25.78 mills per kilowatthour.

The weighted average capacity factor for all fossil-fueled steam-electric plants was 52 percent.[3] The weighted average heat rate was 10,253 Btu per kilowatthour for all fossil-fueled steam-electric plants.

Gas-turbine electric plant production expenses per net kilowatthour in 1987 averaged 47.19 mills; average fuel expenses were 32.71 mills per kilowatthour, or 69 percent.

Nuclear plant production expenses averaged 20.97 mills per kilowatthour; fuel expenses averaged 7.69 mills per kilowatthour, or 37 percent. The weighted average capacity factor of nuclear plants in this publication was 60 percent.

Table 4. Annual Gas-Turbine Net Generation and Fuel Consumption in the United States, 1975-1987

Year	Net Generation Oil (10^3 kilowatthour)	Oil Consumed (10^3 barrels)	Net Generation Gas (10^3 kilowatthour)	Gas Consumed (10^3 thousand cubic feet)	Total Net Generation (10^3 kilowatthour)
1975	14,008,328	34,222	8,428,100	118,275	22,436,428
1976	15,380,655	37,196	8,223,481	114,086	23,604,136
1977	18,192,083	44,500	10,752,466	141,629	28,944,549
1978	18,057,125	43,041	13,400,305	165,895	31,457,430
1979	11,533,662	27,197	16,261,760	208,881	27,795,422
1980	6,418,583	15,743	17,850,470	231,428	24,269,053
1981	3,598,279	9,313	18,743,421	223,280	22,341,700
1982	1,534,155	4,330	12,572,456	149,787	14,106,611
1983	2,093,034	5,625	12,403,720	151,954	14,496,754
1984	2,026,393	5,447	12,823,136	151,126	14,849,529
1985	1,762,737	4,736	12,508,265	156,243	14,271,002
1986	2,379,131	6,059	11,556,340	155,974	13,935,471
1987	2,490,036	6,557	14,068,621	176,257	16,558,657

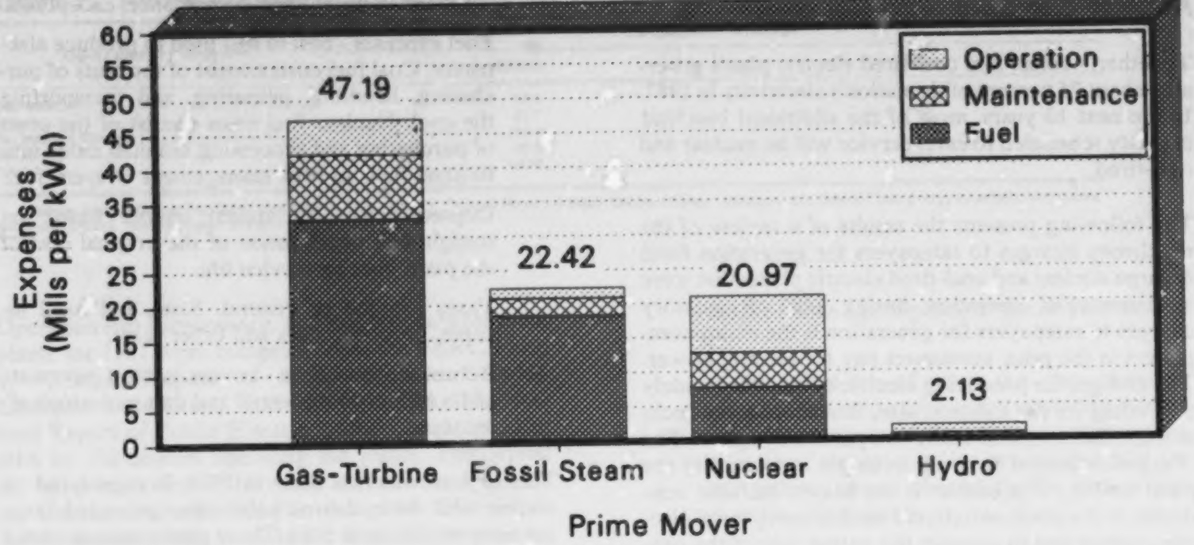
Notes: Totals may not equal sum of components because of independent rounding.
Source: Energy Information Administration, Form EIA-759, "Monthly Power Plant Report," and predecessor forms.

---

[2] Except for aggregate statistics, data for wood and waste fueled plants are included with statistics for fossil-fueled steam-electric plants.

[3] Capacity factor as used in this report is the ratio of net generation by the electric plant to the net summer capability of the plant for 8760 hours per year.

Figure 1. Production Expenses by Prime Mover, 1987



Source: Federal Energy Regulatory Commission, FERC Form 1, 'Annual Report of Major Electric Utilities, Licensees and Others,' and Energy Information Administration, Form EIA-412, 'Annual Report of Public Electric Utilities.'

Average production expenses for plants in 1987, by prime mover are shown in Figure 1. These production expenses are for plant operation and maintenance, including fuel. They do not include annual fixed charges on plant cost (capital costs) such as interest on debt, depreciation or amortization expenses, consequently, they are not the total cost of producing electric power at the various plants.

Summary Statistics for New Plants

One fossil-fueled steam plant started commercial operation in 1987: Stanton Energy, operated by Orlando Utilities Commission. The initial investment for this plant was $961 per kilowatt, while production expenses, weighted by net generation, averaged 20.91 mills per kilowatthour.

Five nuclear plants started commercial operation in 1987. These plants had an average initial investment cost of $3,706 per kilowatt (Table 5). Weighted production expenses for these nuclear plants averaged 24.07 mills per kilowatthour.

Table 5. Historical Plant Cost for Plants with Initial Commercial Operation in 1987, by Plant

Plant Type Plant Name	State	Utility Company	Historical Plant Cost (1,000 dollars)	Cost per Kilowatt (dollars)
Fossil Steam				
Stanton Energy	FL	Orlando Utilities Commission	446,260	961
Nuclear				
Clinton	IL	Illinois Power Company	4,376,424	4,443
Harris	NC	Carolina Power and Light Co.	3,486,355	3,668
Hope Creek	NJ	Public Service Electric and Gas	4,018,941	3,442
Perry	OH	Cleveland Electric Illuminating Co.	5,198,874	4,149
Vogtle	LA	Georgia Power Company	3,565,836	2,935

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Regulatory Charges to Ratepayers for Nuclear and Coal-fired Generation

Together, nuclear and coal-fired electric plants generated about 75 percent of the nation's electricity in 1987. In the next 10 years, most of the additional baseload capacity scheduled to enter service will be nuclear and coal-fired.

The following presents the results of a review of the regulatory charges to ratepayers for generation from 83 large nuclear and coal-fired electric plants that were in commercial operation during 1987. Regulatory charges to ratepayers for generation is the major component in the price consumers pay for electric power. The charges for producing electricity can vary widely depending on the location, size, financing terms, technology, fuel, age, and utilization pattern of a plant. The charges presented here are averages estimated at the plant busbar. The busbar is the heavy, metallic conductor in the plant switchyard used to carry large electric current and to connect the output side of the generators to the voltage transformers. The busbar is a convenient reference point for measuring generating charges, because it is the point at which electricity leaves the plant.

The charge to ratepayers for generating electricity at a plant can be estimated in different ways. One approach is generally used to evaluate alternative investment decisions. In this approach, the present value of the power plant's cost over its service life is estimated and a constant charge for each kilowatthour generated that would just recover the lifetime costs of the plant, is computed. A second approach is to estimate the revenue required to recover the cost of service in a given year, based on the regulations and accounting procedures governing the electric utility. Revenue requirements are usually defined for the utility's total system costs, but the procedure can be adapted for an individual plant. For this article, the second cost estimating approach has been used.

The regulatory charges for electricity generation consist of operation and maintenance expenses, fuel expenses, depreciation, taxes, and a return on the utility's rate base as determined by the regulators. A description of the components follows:

Operation and Maintenance Expenses - recurring expenses to operate and preserve the physical condition or operating efficiency of the plant. Costs include operators' wages and benefits, plant maintenance, security, supervision, materials (such as spare parts), and supplies consumed during plant operation and maintenance, except fuel.

Fuel expenses - cost of fuel used to produce electricity. Coal fuel costs consist of the costs of purchasing, handling, preparing, and transporting the coal. Nuclear fuel costs consist of the costs of purchasing and processing uranium oxide into finished fuel, and the management of spent fuel.

Depreciation - an annual charge based on straight-line depreciation of the original cost of the plant over its service life.

Taxes - including Federal, State, and local income, property, sales and other taxes.

Return on Rate Base - covers interest payments and a return on preferred and common stock after taxes.

This review was first done in 1984. It considered 36 nuclear and 50 coal-fired plants that provided large amounts of power in 1984. These plants were selected to obtain the charges for electricity from producing power plants during the year. The selection of coal-fired plants for 1987 was the same as that used for the 1984 review. The selection of nuclear plants for 1987 excludes three plants that were not operating for most of the year. The nuclear and coal-fired plants were selected according to the following criteria:

Operating data for the plant were reported on the 1984 FERC Form 1 (privately owned utilities) or on the 1984 Form EIA-412 (publicly owned utilities).

Total plant generating nameplate capacity was greater than 450 megawatts.

The plant's average electric power generation in 1984 was greater than 25 percent of its total generating capability.

The average year of first commercial operation of individual coal-fired generating units was similar to the average year of first commercial operation of individual nuclear generating units.

The average year of first commercial operation of the individual generating units for nuclear plants and coal-fired plants in the sample for 1987 is 1975; the average generating capacity is 1,447 megawatts for the nuclear plants and 1,654 megawatts for the coal-fired plants.

The average components of the capital charges for the 33 nuclear plants and the 50 coal-fired plants are presented in Table 6.

Table 6. Average Components of Capital Charge

Capital Charge Component	Components Percentage	
	Nuclear	Coal
Depreciation	23.4	22.2
Taxes	31.1	29.5
Net Interest Charges	19.4	20.2
Net Income	26.1	28.1
Total	100.0	100.0

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Operation and maintenance, and fuel cost data for these plants for 1987 were compiled from the FERC Form 1, "Annual Report of Major Electric Utilities, Licensees and Others," and the Form EIA-412, "Annual Report of Public Electric Utilities," submitted to EIA by the utilities operating the plants. The capital related components of the yearly revenue requirements are not reported explicitly for each plant. EIA developed a methodology to estimate the 1987 revenue requirements with components we have for each of the sample utilities based on the following equation:

$$R = O\&M + F + D + T + (NP)r$$

where

R = revenue requirements for the plant in 1987

$O\&M$ = operation and maintenance expenses for the plant in 1987

F = fuel expenses for the plant in 1987

D = one year's depreciation for the plant (total original cost of the plant divided by 30 years service life)

T = total utility taxes in 1987 prorated for the plant (net value of the plant divided by total utility net value of all plants multiplied by total utility taxes)

NP = net value of the plant is estimated by taking original cost of the plant multiplied by the ratio of the estimated remaining life (i.e., 30-year service life minus age of plant) to the 30-year service life

r = the utility rate of return (i.e., rate of return defined as the ratio of the utility operating income to the net rate base of the utility) is estimated by the ratio of the total utility net income plus the total utility interest charges to the total utility net value of all plants.

The service life was assumed to be 30 years for both nuclear and coal-fired plants. The age of the plant was determined using the date when the last generating unit at the plant went into commercial service.

These data (i.e., total utility taxes, total utility interest charges, total utility net income, total utility net value of all plants, total original cost of each plant, and age of each plant) were obtained from the 1987 FERC Form 1 and Form EIA-412 submitted by the utilities. The net value of each plant was estimated to be the total gross investment in the plant minus estimated depreciation.

This methodology produces an approximation of the capital charges associated with each generating plant, based on data reported directly by the utility.

Table 7 shows the low and the high total generating charges to ratepayers among nuclear and coal-fired plants. The charge components for each of these plants are also shown.

Table 7. Generation Charges

Cost Component	Cents per Kilowatthour			
	Nuclear		Coal	
	Low	High	Low	High
Operation and Maintenance	0.66	1.20	0.24	1.74
Fuel	.53	1.01	1.29	2.74
Capital	.49	6.29	.29	3.50
Total Generating Costs	1.68	8.50	1.82	7.98

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Annual capital-related charges can vary widely by utility and plant depending on the age of the plant, size, location, tax rate, debt structure, and other economic factors of the utility. Nuclear plants built in the early 1980's, for example, have generally incurred higher interest expenses, which are an important component of capital cost. The capital cost data reported on the FERC Form 1 and Form EIA-412 are in dollar values of the year in which the expenditure occurred. Therefore, the capital values represent a mixture of dollars expended in different time periods, e.g., 1960's versus 1980's. Capital improvements made in 1980, for example, are reported in 1980 dollars and then added to the plant investment figures from the date of original construction, for example, 1960. Because of monetary inflation, construction charges for identical plants vary over time; a plant constructed during the 1960's would appear to have a lower capital cost than an identical plant constructed during the 1980's. However, if two identical plants were built in the same time frame, (everything else being equal such as accounting practices, labor and material charges, etc.) they would have the same costs. Capital improvements made after plant construction are added to plant investment.

The percentages of the weighted average charges attributable to each major charge component are shown in Table 8.

Table 8. Average Charges, Weighted by Net Generation

Cost Component	Percent		
	Nuclear	Coal	All Plants
Operation and Maintenance	28.5	11.9	19.4
Fuel	18.1	52.9	37.2
Capital	53.4	35.2	43.4
Total	100.0	100.0	100.0

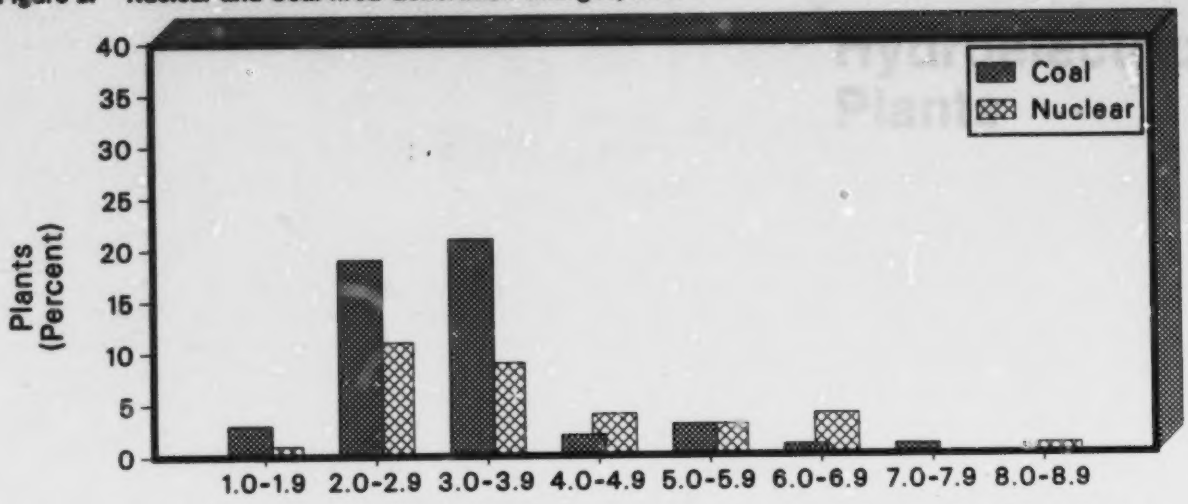
Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

The results of the generating charge calculations for the plants included in the analysis are shown in Figure 2. This figure illustrates the great diversity of generating charges among individual plants. On an overall basis, the weighted average kilowatthour charge (weighted by generation) of electricity generated by the 83 nuclear and coal-fired plants during 1987 was 3.34 cents. The weighted average kilowatthour charge from the 33 nuclear plants was 3.93 cents, and the analogous charge for the 50 coal-fired plants was 2.97 cents.

During 1986 the weighted average kilowatthour charge for electricity generated by the 83 nuclear and coal-fired plants was 3.40 cents, by the 33 nuclear plants was 3.77 cents, and by the 50 coal-fired plants was 3.16 cents.

This methodology used to estimate nuclear and coal-fired generating charges to ratepayers is one of many that could be used. The exercise presents to the reader the concept of total generating charges and a simplistic approach to estimate these charges. Different assumptions of the service life of a generating plant, the age of a generating plant, and the sample of plants included in the methodology would impact the results. The estimated generating charges presented here are utility-wide averages for one point in time and not over the life of the plant. Decisions regarding the economics of the construction of coal or nuclear electric plants are based on life-cycle costs and other factors beyond the scope of the information presented here. These factors include the financial condition of the utility, experience in the construction and operation of specific types of electric plants, availability of suitable sites, and transmission and other costs beyond the busbar.

Figure 2. Nuclear and Coal-fired Generation Charges, 1987



Source: Federal Energy Regulatory Commission, FERC Form 1, 'Annual Report of Major Electric Utilities, Licensees and Others,' and Energy Information Administration, Form EIA-412, 'Annual Report of Public Electric Utilities.'

Hydroelectric Plants

The power house of the Helms Pumped Storage Plant. The Plant is operated by Pacific Gas & Electric Company.

Hydroelectric Plants

There were 1,234 hydroelectric plants operated by electric utilities in the United States in 1987; this chapter contains data on 320 of these plants. The 320 plants represent 21 pumped-storage plants, 276 non-Federal conventional, and 23 Federally owned conventional plants. Of the 21 pumped-storage plants, only one is Federally owned and operated (by TVA). Two plants, Lewiston pumped-storage and the Robert Moses plant at Niagara, New York, are counted as one plant since their data cannot be separated.

The 320 hydroelectric plants in this report accounted for a total net generation of 166,217 gigawatthours in 1987, or 67 percent of the total net generation from electric utility hydroelectric plants in the United States.

Because hydroelectric power is inexpensive compared to power generated by other fuels, hydroelectric capacity is generally utilized whenever available. Therefore, the amount of electric generation in any one year from hydroelectric plants is directly related to the amount of precipitation during the year. During years of high precipitation, hydroelectric generation increases.

Operating Statistics for Non-Federal Conventional Hydroelectric Plants

The 1987 average production expenses (weighted by generation) for the 276 non-Federal conventional hydroelectric plants averaged 2.61 mills per kilowatthour. Of this total, operation expenses averaged 58 percent or 1.51 mills per kilowatthour; maintenance expenses were 1.11 mills per kilowatthour, or 42 percent of the total (Table 9). The weighted average capacity factor for 1987 was 45 percent.

In 1982 and 1984, years of normal precipitation, the weighted average capacity factors for non-Federal conventional hydroelectric plants was about 61 percent. In 1983, a year of high precipitation, the weighted average capacity factor was 65 percent. The higher generation from hydroelectric power in 1983 kept the increase in average production expenses to a minimum, 0.07 mills per kilowatthour. In 1985, a year of below normal water levels in western States, the weighted average capacity factor fell to 52 percent. As a result, average production expenses increased 0.33 mills per kilowatthour in 1985, compared to the previous year. The 1986 average production expenses increased by only 0.01 mills per kilowatthour from 1985, in part due to an increase in capacity factor from 52 percent to 57 percent. In 1987, average production expenses increased by 0.26 mills per kilowatthour to 2.61 and the capacity factor decreased to 45 percent.

Operating Statistics for Federally Owned Conventional Hydroelectric Plants

The 1987 weighted production expenses for Federally owned conventional plants averaged 1.31 mills per kilowatthour. Of this, operation expenses averaged 69 percent, or 0.91 mills per kilowatthour; average maintenance expenses were 0.40 mills per kilowatthour, or 31 percent of the total. The weighted average capacity factor for the 23 Federally owned conventional plants was 48 percent.

A summary of production expenses from 1985 to 1987 for Federally owned conventional hydroelectric plants are shown in Table 10. Data for only 3 years are shown because data for Federally owned plants were not available from 1982 to 1984.

Historical Plant Cost and Operating Statistics for New Plants

Pacific Gas & Electric Company's Newcastle Plant, the only plant placed in service in 1986, had a capacity factor of 32 percent after one complete year of operation and average production expenses of 0.86 mills per kilowatthour.

In 1987 there were no new hydroelectric plants placed in operation for which data were required to be reported.

Table 9. Average Annual Production Expenses for Non-Federal Conventional Hydroelectric Plants, Weighted by Net Generation, 1982-1987
(Mills per Kilowatthour)

Year	Operation	Maintenance	Total
1982	0.97	0.68	1.66
1983	.94	.79	1.73
1984	1.12	.90	2.01
1985	1.32	1.02	2.34
1986	1.30	1.05	2.35
1987	1.51	1.11	2.61

Notes: •Totals may not equal sum of components because of independent rounding. •Weighted average production expenses for 1982-1984 have been revised to include only those units within the sample that generated power in the indicated year.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 10. Average Annual Production Expenses for Federal Conventional Hydroelectric Plants, Weighted by Net Generation, 1985-1987
(Mills per Kilowatthour)

Year	Operation	Maintenance	Total
1985	0.62	0.42	1.04
1986	.73	.35	1.08
1987	.91	.40	1.31

Notes: Totals may not equal sum of components because of independent rounding.

Source: Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987

Name of Utility	Alabama Power Co							
Name of Plant	Bankhead Dam		H. Neely Henry Dam		Harris Dam		Holt Dam	
Post Office	Northport, AL		Chatchee, AL				Holt, AL	
Location of Plant (County and State)	Tuscaloosa AL		Calhoun AL		Wedowee AL		Tuscaloosa AL	
River	Black Warrior		Coosa		Tallapoosa		Black Warrior	
Region and Power Supply Area	III-22		III-22		III-22		III-22	
Licensed Project No.	02165		02146		02628		02203	
General Operating Characteristics								
Installed Generating Capacity (MW)	45.1		72.9		135.0		40.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	146.7		144.4		122.9		129.4	
Plant Factor Based on Nameplate Rating (percent)	37		23		10		37	
Net Peak Demand on Plant - 60 Minutes (MW)	52.0		70.0		131.0		42.0	
Net Plant Capability								
Winter Capability (MW)	50.0		72.0		135.0		43.0	
Summer Capability (MW)	50.0		69.0		125.0		43.0	
Plant Hours Connected to Load	3,046		3,292		1,604		3,261	
Planned Ultimate Capacity (MW)	45.1		72.9		-		40.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	30		9,827		29,732		0	
Structures and Improvements	4,752		1,011		37,273		3,394	
Reservoirs, Dams, and Waterways	1,241		13,958		114,974		3,297	
Equipment	3,712		7,298		41,954		3,379	
Roads, Railroads, and Bridges	0		0		2,009		0	
Total	9,735		32,193		225,942		10,069	
Cost per kW of Installed Capacity(dollars)	216		442		1,674		252	
Power Production Expenses								
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	83	0.57	132	0.91	105	0.85	77	0.60
Water for Power	74	.50	31	.22	0	.00	67	.52
Hydraulic Expenses	16	.11	157	1.09	39	.32	15	.12
Electric Expenses	41	.28	51	.35	55	.45	41	.31
Miscellaneous Hydraulic Power Expenses	94	.64	239	1.66	203	1.65	87	.67
Rents	0	.00	0	.00	1	.01	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	79	.54	213	1.47	132	1.07	89	.69
Maintenance of Structures	31	.21	41	.29	37	.30	33	.25
Maintenance of Reservoirs, Dams, and Waterways	12	.08	181	1.25	46	.37	11	.08
Maintenance of Electric Plant	96	.66	94	.65	62	.51	148	1.14
Maintenance of Miscellaneous Hydraulic Plant	15	.10	27	.19	24	.20	10	.07
Total, Exclusive of Pumping	542	3.69	1,167	8.08	704	5.73	577	4.46
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	542	3.69	1,167	8.08	704	5.73	577	4.46
Hydraulic Data								
Drainage Area (square miles)	3,969		6,600		1,453		4,213	
Area of Pond at Normal Full-Pond Level (acres)	9,200		11,235		10,661		3,200	
Pondage from Maximum Draw-Down (acre-feet)	26,000		91,200		207,300		3,200	
Gross Head (feet)	72.00		356.00		1,318.00		61.00	
Flow at Full Station Load (cfs per kW)	.1980		.3880		-		-	
Average Number of Employees	7		18		15		9	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1963		1966		1983		1968	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Alabama Power Co							
Name of Plant	Jordan		Lay Dam		Lewis Smith Dam		Logan Martin Dam	
Post Office	Wetumpka, AL		Clanton, AL		Jasper, AL		Vincent, AL	
Location of Plant (County and State)	Elmore AL		Chilton & Coosa AL		Walker & Cullman AL		Talladega AL	
River	Coosa		Coosa		Warrior (SipseyFork)		Coosa	
Region and Power Supply Area	III-22		III-22		III-22		III-22	
Licensed Project No.	00618		02146		02165		02146	
General Operating Characteristics								
Installed Generating Capacity (MW)	100.0		177.0		157.5		128.3	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	130.1		432.2		221.5		260.1	
Plant Factor Based on Nameplate Rating (percent)	15		28		16		23	
Net Peak Demand on Plant - 60 Minutes (MW)	132.0		186.0		191.0		135.0	
Net Plant Capability								
Winter Capability (MW)	139.0		181.0		185.0		139.0	
Summer Capability (MW)	139.0		181.0		175.0		124.0	
Plant Hours Connected to Load	2,285		3,430		1,386		3,127	
Planned Ultimate Capacity (MW)	100.0		177.0		157.5		128.3	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	698		7,733		4,718		20,084	
Structures and Improvements	856		1,455		3,422		1,660	
Reservoirs, Dams, and Waterways	5,915		17,363		15,442		41,055	
Equipment	4,794		10,835		8,210		8,839	
Roads, Railroads, and Bridges	0		0		133		0	
Total	12,264		37,386		31,924		71,638	
Cost per kW of Installed Capacity(dollars)	123		211		203		558	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	142	1.09	136	0.31	102	0.46	194	0.75
Water for Power	43	.33	76	.17	0	.00	55	.21
Hydraulic Expenses	24	.19	101	.23	12	.05	119	.46
Electric Expenses	72	.56	70	.16	47	.21	65	.25
Miscellaneous Hydraulic Power Expenses	314	2.41	269	.62	218	.99	331	1.27
Rents	0	.00	1	.00	36	.16	2	.01
Maintenance Expenses								
Maintenance Supervision and Engineering	207	1.59	130	.30	130	.59	359	1.38
Maintenance of Structures	250	1.92	208	.48	120	.54	122	.47
Maintenance of Reservoirs, Dams, and Waterways	35	.27	39	.09	39	.18	727	2.79
Maintenance of Electric Plant	138	1.06	128	.30	72	.32	354	1.36
Maintenance of Miscellaneous Hydraulic Plant	19	.14	28	.07	5	.02	24	.09
Total, Exclusive of Pumping	1,244	9.56	1,186	2.74	781	3.53	2,351	9.04
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	1,244	9.56	1,186	2.74	781	3.53	2,351	9.04
Hydraulic Data								
Drainage Area (square miles)	10,165		9,087		944		7,700	
Area of Pond at Normal Full-Pond Level (acres)	4,900		6,000		21,200		152,063	
Pondage from Maximum Draw-Down (acre-feet)	43,750		37,400		600,000		142,393	
Gross Head (feet)	89.00		69.00		232.00		61.00	
Flow at Full Station Load (cfs per kW)	.1510		-		.0600		.2400	
Average Number of Employees	[1] 15		19		13		15	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1928		1967		1961		1964	

---

[1] Personnel included at Jordan Dam are also assigned to maintenance at Bouldin Dam.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Alabama Power Co							
Name of Plant	Martin Dam		Mitchell Dam		Thurlow Dam		Walter Bouldin Dam	
Post Office	Dadeville, AL		Verbena, AL		Tallahassee, AL		Wetumpka, AL	
Location of Plant (County and State)	Elmore AL		Chilton & Coosa AL		Elmore AL		Elmore AL	
River	Tallapoosa		Coosa		Tallapoosa		Coosa	
Region and Power Supply Area	III-22		III-22		III-22		III-22	
Licensed Project No.	00349		00082		02408		02146	
	General Operating Characteristics							
Installed Generating Capacity (MW)	154.2		170.0		58.0		225.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	276.1		368.2		196.1		624.2	
Plant Factor Based on Nameplate Rating (percent)	20		25		39		32	
Net Peak Demand on Plant - 60 Minutes (MW)	151.0		172.0		64.0		237.0	
Net Plant Capability								
Winter Capability (MW)	161.0		[1] 169.0		66.0		232.0	
Summer Capability (MW)	137.0		169.0		66.0		232.0	
Plant Hours Connected to Load	2,787		3,578		4,278		3,435	
Planned Ultimate Capacity (MW)	154.2		170.0		58.0		225.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	2,966		512		1,873		6,069	
Structures and Improvements	2,392		23,211		1,605		8,166	
Reservoirs, Dams, and Waterways	8,048		110,952		2,925		37,591	
Equipment	4,529		86,846		2,168		8,872	
Roads, Railroads, and Bridges	0		2,216		0		258	
Total	17,935		223,736		8,571		60,975	
Cost per kW of Installed Capacity(dollars)	116		1,316		148		271	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	141	0.51	121	0.33	98	0.50	111	0.18
Water for Power	0	.00	73	.20	0	.00	97	.16
Hydraulic Expenses	112	.41	32	.09	15	.08	23	.04
Electric Expenses	74	.27	78	.21	39	.20	48	.08
Miscellaneous Hydraulic Power Expenses	269	.97	271	.73	252	1.28	246	.39
Rents	1	.00	2	.01	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	229	.83	182	.49	213	1.08	146	.23
Maintenance of Structures	73	.27	54	.15	126	.64	66	.10
Maintenance of Reservoirs, Dams, and Waterways	73	.27	45	.12	75	.38	81	.13
Maintenance of Electric Plant	160	[illegible]	170	.46	179	.91	152	.24
Maintenance of Miscellaneous Hydraulic Plant	23	.08	39	.11	22	.11	21	.03
Total, Exclusive of Pumping	1,095	3.96	1,068	2.90	1,018	5.19	991	1.59
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	1,085	3.96	1,068	2.90	1,018	5.19	991	1.59
	Hydraulic Data							
Drainage Area (square miles)	3,000		9,827		3,300		10,165	
Area of Pond at Normal Full-Pond Level (acres)	40,000		5,850		574		6,807	
Pondage from Maximum Draw-Down (acre-feet)	1,375,000		33,300		-		56,000	
Gross Head (feet)	145.00		66.00		90.00		119.00	
Flow at Full Station Load (cfs per kW)	.1060		.2240		.1520		.1080	
Average Number of Employees	18		18		[2] 12		[3] 14	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1926		1923		1930		1967	

[1] Minimum net plant capabilities since units 1, 2, and 3 were retired and units 5, 6, and 7 were put into service on April 1, 1965.

[2] Operated remotely from Thurlow Dam.

[3] Personnel included at Jordan Dam are also assigned to maintenance at Bouldin Dam.

NR—Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Alabama Power Co				Tennessee Valley Authority		Salt River Proj Ag I & P	
Name of Plant	Weiss Dam		Yates Dam		Wilson		Horse Mesa	
Post Office	Leesburg, AL		Tallahassee, AL				Roosevelt, AZ	
Location of Plant (County and State)	Cherokee AL		Elmore AL		Lauderdale AL		Maricopa AZ	
River	Coosa		Tallapoosa		Tennessee River		Salt	
Region and Power Supply Area	III-22		III-22		III-22		VIII-48	
Licensed Project No.	02146		02407					
General Operating Characteristics								
Installed Generating Capacity (MW)	87.8		32.0		629.8		129.6	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	155.8		114.0		2,341.8		84.6	
Plant Factor Based on Nameplate Rating (percent)	20		41		42		7	
Net Peak Demand on Plant - 60 Minutes (MW)	90.0		36.0		727.0		123.0	
Net Plant Capability								
Winter Capability (MW)	78.0		32.0		635.0		126.0	
Summer Capability (MW)	65.0		32.0		635.0		123.0	
Plant Hours Connected to Load	3,006		4,141		8,760		3,186	
Planned Ultimate Capacity (MW)	87.8		32.0		-		139.6	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	12,313		707		0		0	
Structures and Improvements	4,048		942		18,617		5,441	
Reservoirs, Dams, and Waterways	14,837		2,368		0		6,714	
Equipment	7,947		1,731		40,878		12,119	
Roads, Railroads, and Bridges	0		0		0		3,900	
Total	39,145		5,748		59,496		28,174	
Cost per kW of Installed Capacity(dollars)	446		180		94		217	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	122	0.78	87	0.76	224	0.10	33	0.39
Water for Power	38	.25	0	.00	0	.00	4,623	54.63
Hydraulic Expenses	100	.64	12	.11	13	.01	17	.20
Electric Expenses	45	.29	39	.34	742	.32	111	1.31
Miscellaneous Hydraulic Power Expenses	227	1.46	224	1.97	656	.28	113	1.33
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	135	.87	99	.87	162	.07	120	1.42
Maintenance of Structures	20	.13	145	1.27	160	.07	313	3.70
Maintenance of Reservoirs, Dams, and Waterways	172	1.10	32	.28	182	.08	535	6.32
Maintenance of Electric Plant	146	.94	115	1.01	706	.30	422	4.98
Maintenance of Miscellaneous Hydraulic Plant	17	.11	17	.14	276	.12	97	1.14
Total, Exclusive of Pumping	1,023	6.56	770	6.76	3,120	1.33	6,383	75.43
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	1,023	6.56	770	6.76	3,120	1.33	6,383	75.43
Hydraulic Data								
Drainage Area (square miles)	5,273		3,250		307		5,870	
Area of Pond at Normal Full-Pond Level (acres)	30,200		2,000		15,500		2,600	
Pondage from Maximum Draw-Down (acre-feet)	212,000		8,900		634,100		231,959	
Gross Head (feet)	43.00		53.00		90.00		266.00	
Flow at Full Station Load (cfs per kW)	.2680		.2460		-		.0613	
Average Number of Employees	14		[1] 11		85		7	
Type of Plant Operation	Conventional		Conventional		Conventional		Conv/Pumped Storage	
Initial Year of Plant Operation	1961		1928		1925		1927	

[1] Operated remotely from Thurlow Dam.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Salt River Proj Ag I & P		Arkansas Power & Light Co	U.S. Army Corps of Engineers
Name of Plant	Mormon Flat	Roosevelt	Carpenter	Bull Shoals Lake
Post Office	Mormon Flat, AZ	Roosevelt, AZ	Hot Springs,AR	
Location of Plant (County and State)	MaricopA AZ	Gila AZ	Hot Springs AR	Marion AR
River	Salt	Salt	Ouachita	Bull Shoals Lake
Region and Power Supply Area	VIII-48	VIII-48	V-25	V-33
Licensed Project No.			00271	
General Operating Characteristics				
Installed Generating Capacity (MW)	57.8	36.0	56.0	340.0
Pumping Energy - Pumped Storage (million kWh)	-	-	-	-
Net Generation (million kWh)	37.5	123.3	78.3	566.9
Plant Factor Based on Nameplate Rating (percent)	7	39	16	19
Net Peak Demand on Plant - 60 Minutes (MW)	55.0	36.0	56.0	389.0
Net Plant Capability				
Winter Capability (MW)	54.0	36.0	59.0	391.0
Summer Capability (MW)	54.0	36.0	59.0	391.0
Plant Hours Connected to Load	2,910	3,540	6,757	1,794
Planned Ultimate Capacity (MW)	57.8	36.0	56.0	-
Historical Plant Cost (thousand dollars)				
Land and Land Rights	0	0	911	6,219
Structures and Improvements	3,399	3,152	1,064	10,627
Reservoirs, Dams, and Waterways	5,807	0	2,753	27,640
Equipment	7,493	6,274	2,035	20,938
Roads, Railroads, and Bridges	202	131	0	80
Total	16,900	9,557	6,783	65,504
Cost per kW of Installed Capacity(dollars)	292	265	121	193

Power Production Expenses	Mormon Flat $1,000	Mormon Flat Mills/kWh	Roosevelt $1,000	Roosevelt Mills/kWh	Carpenter $1,000	Carpenter Mills/kWh	Bull Shoals Lake $1,000	Bull Shoals Lake Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	8	0.21	16	0.13	62	0.79	112	0.20
Water for Power	2,179	58.18	3,803	30.86	74	.95	0	.00
Hydraulic Expenses	7	.18	15	.12	-1	.00	14	.02
Electric Expenses	56	1.48	39	.31	270	3.44	324	.57
Miscellaneous Hydraulic Power Expenses	74	1.98	79	.64	19	.25	101	.18
Rents	0	.00	0	.00	0	.00	678	1.20
Maintenance Expenses								
Maintenance Supervision and Engineering	54	1.43	47	.38	14	.18	349	.62
Maintenance of Structures	109	2.90	73	.59	40	.50	57	.10
Maintenance of Reservoirs, Dams, and Waterways	91	2.42	48	.39	15	.19	0	.00
Maintenance of Electric Plant	438	11.68	188	1.53	6	.08	134	.24
Maintenance of Miscellaneous Hydraulic Plant	63	1.69	33	.27	93	1.18	5	.01
Total, Exclusive of Pumping	3,078	82.17	4,340	35.21	591	7.55	1,774	3.13
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	3,078	82.17	4,340	35.21	591	7.55	1,774	3.13

Hydraulic Data	Mormon Flat	Roosevelt	Carpenter	Bull Shoals Lake
Drainage Area (square miles)	6,100	5,760	1,420	6,036
Area of Pond at Normal Full-Pond Level (acres)	944	18,300	7,195	45,440
Pondage from Maximum Draw-Down (acre-feet)	4,648	1,381,580	119,560	1,003,000
Gross Head (feet)	138.00	226.00	95.00	208.00
Flow at Full Station Load (cfs per kW)	.0940	.0893	.1660	-
Average Number of Employees	4	4	16	15
Type of Plant Operation	Conv/Pumped Storage	Conventional	Conventional	Conventional
Initial Year of Plant Operation	1971	1909	1932	1952

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	U.S. Army Corps of Engineers				Imperial Irrigation District		Los Angeles City of	
Name of Plant	Dardanelle		Dworshak		Drop No 4		Castaic Power Plant	
Post Office					Holtville, Ca		Castaic, CA	
Location of Plant (County and State)	Pope AR		Pope AR		Imperial CA		Los Angeles CA	
River	Arkansas		Arkansas		All American Canal		CA. Aqueduct	
Region and Power Supply Area	V-33		V-25		VIII-47		VIII-47	
Licensed Project No.					01941		02426	
General Operating Characteristics								
Installed Generating Capacity (MW)	124.0		400.0		19.6		1,331.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	831.2		1,244.2		103.5		331.5	
Plant Factor Based on Nameplate Rating (percent)	77		36		60		3	
Net Peak Demand on Plant - 60 Minutes (MW)	140.0		450.0		19.0		890.0	
Net Plant Capability								
Winter Capability (MW)	142.6		460.0		16.0		1,247.0	
Summer Capability (MW)	142.6		460.0		20.0		1,247.0	
Plant Hours Connected to Load	7,022		8,760		8,542		1,832	
Planned Ultimate Capacity (MW)	-		-		19.6		1,331.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	12,277		33,833		NR		100	
Structures and Improvements	14,091		21,996		NR		71,925	
Reservoirs, Dams, and Waterways	8,861		218,222		NR		174,919	
Equipment	10,573		20,586		0		78,284	
Roads, Railroads, and Bridges	96		7,422		NR		1,429	
Total	45,899		302,060		NR		326,656	
Cost per kW of Installed Capacity(dollars)	370		755		NR		245	
Power Production Expenses								
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	100	0.12	850	0.68	NR	-	1,675	5.05
Water for Power	0	.00	0	.00	NR	-	0	.00
Hydraulic Expenses	0	.00	0	.00	NR	-	87	.26
Electric Expenses	494	.59	280	.22	NR	-	894	2.70
Miscellaneous Hydraulic Power Expenses	61	.07	38	.03	NR	-	1,732	5.22
Rents	915	1.10	2,835	2.28	NR	-	1	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	36	.04	122	.10	NR	-	467	1.41
Maintenance of Structures	0	.00	127	.10	NR	-	597	1.80
Maintenance of Reservoirs, Dams, and Waterways	0	.00	20	.02	NR	-	134	.40
Maintenance of Electric Plant	9	.01	219	.18	NR	-	9,055	27.31
Maintenance of Miscellaneous Hydraulic Plant	0	.00	45	.04	NR	-	28	.08
Total, Exclusive of Pumping	1,616	1.94	4,537	3.65	NR	-	14,669	44.20
Cost of Pumping Energy	0	.00	0	.00	0	0.00	0	.00
Total Production Expenses	1,616	1.94	4,537	3.65	0	.00	14,669	44.20
Hydraulic Data								
Drainage Area (square miles)	153,666		-		-		-	
Area of Pond at Normal Full-Pond Level (acres)	34,300		-		-		1,380	
Pondage from Maximum Draw-Down (acre-feet)	65,300		-		-		173,000	
Gross Head (feet)	55.00		-		51.00		1,016.00	
Flow at Full Station Load (cfs per kW)	-		-		.0300		.0122	
Average Number of Employees	15		35		[1] 13		60	
Type of Plant Operation	Conventional		Conventional		Conventional		Conv/Pumped Storage	
Initial Year of Plant Operation	1965		1973		1950		1972	

[1] Employees cover Drop #1,#2,#3,#4,#5 and East Highline.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Los Angeles City of							
Name of Plant	Control Gorge Power		Foothill Power Plt.		Middle Gorge Pwr Plt		San Francisquito #2	
Post Office	Bishop, CA		Sylmar, CA		Bishop, CA		Saugus, CA	
Location of Plant (County and State)	Inyou CA		Los Angeles CA		Mono CA		Los Angeles CA	
River	Owens		Aqueduct		Owens		L.A. Aqueduct	
Region and Power Supply Area	VIII-47		VIII-47		VIII-47		VIII-47	
Licensed Project No.								
General Operating Characteristics								
Installed Generating Capacity (MW)	37.5		11.0		37.5		42.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	160.7		76.4		163.9		119.7	
Plant Factor Based on Nameplate Rating (percent)	49		79		50		33	
Net Peak Demand on Plant - 60 Minutes (MW)	NR		NR		NR		NR	
Net Plant Capability								
Winter Capability (MW)	37.0		10.0		37.0		16.0	
Summer Capability (MW)	37.0		10.0		37.0		16.0	
Plant Hours Connected to Load	5,951		8,491		5,739		6,780	
Planned Ultimate Capacity (MW)	38.0		11.0		38.0		42.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	0		440		0		174	
Structures and Improvements	2,072		828		2,442		855	
Reservoirs, Dams, and Waterways	8,696		1,363		5,504		7,892	
Equipment	3,189		1,741		2,720		2,650	
Roads, Railroads, and Bridges	194		42		194		42	
Total	14,150		4,414		10,860		11,614	
Cost per kW of Installed Capacity(dollars)	377		401		290		277	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	49	0.31	13	0.17	24	0.15	89	0.74
Water for Power	0	.00	0	.00	0	.00	0	.00
Hydraulic Expenses	3	.02	0	.00	0	.00	39	.32
Electric Expenses	143	.89	43	.57	68	.42	200	1.67
Miscellaneous Hydraulic Power Expenses	26	.16	3	.04	7	.04	53	.44
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	40	.25	9	.11	23	.14	89	.74
Maintenance of Structures	68	.42	8	.11	76	.46	261	2.18
Maintenance of Reservoirs, Dams, and Waterways	32	.20	1	.02	4	.03	89	.74
Maintenance of Electric Plant	162	1.01	53	.69	49	.30	635	5.30
Maintenance of Miscellaneous Hydraulic Plant	18	.11	0	.00	4	.02	45	.38
Total, Exclusive of Pumping	541	3.40	131	1.70	256	1.60	1,499	12.52
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	541	3.40	131	1.70	256	1.60	1,499	12.52
Hydraulic Data								
Drainage Area (square miles)	-		-0.		-		-	
Area of Pond at Normal Full-Pond Level (acres)	-		-		-		4	
Pondage from Maximum Draw-Down (acre-feet)	-		-		-		74	
Gross Head (feet)	780.00		540.00		795.00		540.00	
Flow at Full Station Load (cfs per kW)	.0185		.0250		.0183		.0307	
Average Number of Employees	15		NR		[1] NR		[2] NR	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1952		1971		1952		1920	

[1] Included in Control Gorge.

[2] Included in San Francisquito 1.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Los Angeles City of				Pacific Gas & Electric Co			
Name of Plant	San Francisquito Pwr		Upper Gorge Pwr Plt		A G Wishon		Balch No 1	
Post Office	Saugus, CA		Bishop, CA				Fresno, CA	
Location of Plant (County and State)	Los Angeles CA		Mono CA		Fresno CA		Fresno CA	
River	L.A. Aqueduct		Owens		Kings		N.F. Kings	
Region and Power Supply Area	VIII-47		VIII-47		VIII-46		VIII-46	
Licensed Project No.					01988		00175	
General Operating Characteristics								
Installed Generating Capacity (MW)	69.3		37.5		12.8		31.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	346.5		150.9		18.2		18.7	
Plant Factor Based on Nameplate Rating (percent)	57		46		16		7	
Net Peak Demand on Plant - 60 Minutes (MW)	NR		NR		18.5		36.0	
Net Plant Capability								
Winter Capability (MW)	69.3		36.0		20.0		34.0	
Summer Capability (MW)	75.5		36.0		20.0		34.0	
Plant Hours Connected to Load	8,506		5,602		5,257		1,079	
Planned Ultimate Capacity (MW)	58.1		38.0		-		31.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	174		0		1		6	
Structures and Improvements	2,154		2,822		625		1,695	
Reservoirs, Dams, and Waterways	7,216		14,725		1,872		6,407	
Equipment	29,140		2,837		842		1,515	
Roads, Railroads, and Bridges	42		194		3		332	
Total	38,729		20,578		3,343		9,956	
Cost per kW of Installed Capacity(dollars)	558		549		261		321	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	367	1.06	35	0.23	8	0.42	56	2.96
Water for Power	0	.00	0	.00	-23	.00	0	.00
Hydraulic Expenses	42	.12	1	.01	29	1.60	30	1.62
Electric Expenses	418	1.21	92	.61	40	2.22	33	1.79
Miscellaneous Hydraulic Power Expenses	116	.34	10	.06	47	2.57	251	13.46
Rents	0	.00	0	.00	20	1.11	46	2.45
Maintenance Expenses								
Maintenance Supervision and Engineering	181	.52	6	.04	23	1.25	87	4.64
Maintenance of Structures	360	1.04	8	.05	31	1.71	19	1.03
Maintenance of Reservoirs, Dams, and Waterways	71	.21	2	.01	72	3.96	45	2.43
Maintenance of Electric Plant	574	1.66	32	.21	131	7.21	50	2.66
Maintenance of Miscellaneous Hydraulic Plant	44	.13	3	.02	9	.48	39	2.07
Total, Exclusive of Pumping	2,174	6.30	189	1.30	387	21.31	656	35.15
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	2,174	6.30	180	1.30	387	21.31	656	35.15
Hydraulic Data								
Drainage Area (square miles)	-		400		61		232	
Area of Pond at Normal Full-Pond Level (acres)	600		5,280		-		35	
Pondage from Maximum Draw-Down (acre-feet)	41,800		183,465		66		967	
Gross Head (feet)	895.00		603.00		1,412.00		2,379.00	
Flow at Full Station Load (cfs per kW)	.0192		.0188		-		.0064	
Average Number of Employees	30		[1] NR		5		[2] NR	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1917		1953		1910		1927	

[1] Included in Control Gorge.

[2] Operated remotely from Fresno.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Pacific Gas & Electric Co							
Name of Plant	Balch No 2		Belden		Bucks Creek		Butt Valley	
Post Office	Fresno, CA		Belden, CA		Storrie, CA		Caribou, CA	
Location of Plant (County and State)	Fresno CA		Plumas CA		Plumas CA		Plumas CA	
River	N.F. Kings		N.F. Feather		N.F. Feather		N.F. Feather	
Region and Power Supply Area	VIII-46		VIII-46		VIII-46		VIII-46	
Licensed Project No.	00175		02105		00619		02105	
General Operating Characteristics								
Installed Generating Capacity (MW)	97.2		117.9		66.0		36.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	277.5		198.0		155.8		96.3	
Plant Factor Based on Nameplate Rating (percent)	33		19		27		31	
Net Peak Demand on Plant - 60 Minutes (MW)	109.1		120.0		60.0		43.0	
Net Plant Capability								
Winter Capability (MW)	105.0		125.0		55.0		40.0	
Summer Capability (MW)	105.0		125.0		55.0		40.0	
Plant Hours Connected to Load	4,727		2,342		5,452		2,654	
Planned Ultimate Capacity (MW)	97.2		118.0		66.0		36.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	1		71		233		23	
Structures and Improvements	1,387		964		762		1,124	
Reservoirs, Dams, and Waterways	3,914		38,371		9,218		4,304	
Equipment	5,444		5,809		2,636		4,137	
Roads, Railroads, and Bridges	0		293		693		80	
Total	10,745		45,508		13,541		9,667	
Cost per kW of Installed Capacity(dollars)	111		386		205		269	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	15	0.05	13	0.07	22	0.14	15	0.16
Water for Power	0	.00	0	.00	0	.00	0	.00
Hydraulic Expenses	22	.08	24	.12	56	.36	26	.27
Electric Expenses	48	.17	67	.34	150	.96	81	.84
Miscellaneous Hydraulic Power Expenses	66	.24	18	.09	44	.28	21	.22
Rents	136	.49	140	.71	102	.66	51	.53
Maintenance Expenses								
Maintenance Supervision and Engineering	44	.16	24	.12	36	.23	28	.29
Maintenance of Structures	0	.00	1	.01	8	.05	7	.07
Maintenance of Reservoirs, Dams, and Waterways	1	.00	45	.23	81	.52	10	.10
Maintenance of Electric Plant	75	.27	2,312	11.68	28	.18	66	.68
Maintenance of Miscellaneous Hydraulic Plant	1	.01	20	.10	24	.15	8	.08
Total, Exclusive of Pumping	407	1.47	2,665	13.46	553	3.55	312	3.24
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	407	1.47	2,665	13.46	553	3.55	312	3.24
Hydraulic Data								
Drainage Area (square miles)	232		616		49		503	
Area of Pond at Normal Full-Pond Level (acres)	35		42		36		26,243	
Pondage from Maximum Draw-Down (acre-feet)	957		746		1,033		1,024,172	
Gross Head (feet)	2,389.00		770.00		2,556.00		358.00	
Flow at Full Station Load (cfs per kW)	.0058		.0189		.0062		.0395	
Average Number of Employees	[1] NR		[2] NR		[3] NR		[2] NR	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1958		1969		1928		1958	

[1] Operated remotely from Fresno.

[2] Operated remotely from Caribou No. 1.

[3] Operated remotely from Rock Creek.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Pacific Gas & Electric Co							
Name of Plant	Caribou No 1		Caribou No 2		Coleman		Cresta	
Post Office	Caribou, CA		Caribou, CA		Cottonwood, CA		Storrie, CA	
Location of Plant (County and State)	Plumas CA		Plumas CA		Shasta CA		Butte CA	
River	N.F. Feather		N.F. Feather		Battle Creek		N.F. Feather	
Region and Power Supply Area	VIII-46		VIII-46		VIII-46		VIII-46	
Licensed Project No.	02105		02105		01121		01962	
	General Operating Characteristics							
Installed Generating Capacity (MW)	75.0		109.8		12.2		67.5	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	93.5		324.9		84.1		219.2	
Plant Factor Based on Nameplate Rating (percent)	14		34		70		37	
Net Peak Demand on Plant - 60 Minutes (MW)	76.0		121.0		12.5		72.0	
Net Plant Capability								
Winter Capability (MW)	75.0		120.0		13.0		70.0	
Summer Capability (MW)	75.0		120.0		13.0		70.0	
Plant Hours Connected to Load	2,329		3,956		8,646		8,659	
Planned Ultimate Capacity (MW)	75.0		110.0		12.2		68.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	4		17		59		1,544	
Structures and Improvements	2,871		1,774		956		1,292	
Reservoirs, Dams, and Waterways	6,451		21,702		4,577		14,983	
Equipment	3,881		7,257		5,436		3,635	
Roads, Railroads, and Bridges	272		1		41		135	
Total	13,478		30,751		11,069		21,590	
Cost per kW of Installed Capacity(dollars)	180		280		907		320	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	29	0.31	13	0.04	10	0.12	13	0.06
Water for Power	0	.00	0	.00	0	.00	0	.00
Hydraulic Expenses	26	.27	7	.02	51	.61	47	.22
Electric Expenses	109	1.16	75	.23	54	.65	60	.27
Miscellaneous Hydraulic Power Expenses	74	.79	33	.10	17	.20	29	.13
Rents	85	.91	132	.41	21	.24	80	.37
Maintenance Expenses								
Maintenance Supervision and Engineering	50	.54	27	.08	15	.18	28	.13
Maintenance of Structures	31	.33	2	.01	2	.02	13	.06
Maintenance of Reservoirs, Dams, and Waterways	6	.06	7	.02	101	1.20	64	.29
Maintenance of Electric Plant	54	.58	167	.52	24	.29	45	.20
Maintenance of Miscellaneous Hydraulic Plant	69	.74	3	.01	20	.23	11	.05
Total, Exclusive of Pumping	534	5.71	468	1.44	315	3.75	390	1.78
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	534	5.71	468	1.44	315	3.75	390	1.78
	Hydraulic Data							
Drainage Area (square miles)	578		578		332		1,820	
Area of Pond at Normal Full-Pond Level (acres)	1,600		1,600		11		95	
Pondage from Maximum Draw-Down (acre-feet)	32,557		32,557		11		2,208	
Gross Head (feet)	1,149.00		1,150.00		481.00		290.00	
Flow at Full Station Load (cfs per kW)	.0150		.0123		.0300		.0500	
Average Number of Employees	6		[1] NR		[2] NR		[3] NR	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1921		1958		1979		1949	

[1] Operated remotely from Caribou No. 1.

[2] Attended by 4 roving operators headquartered at Manton.

[3] Operated remotely from Rock Creek.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Pacific Gas & Electric Co							
Name of Plant	DeSabla		Drum No 1		Drum No 2		Dutch Flat	
Post Office	Magalia, CA		Alta, CA		Alta, CA		Dutch Flat, CA	
Location of Plant (County and State)	Butte CA		Placer CA		Placer CA		Placer CA	
River	Rice Butte Creek		Bear		Bear		Bear	
Region and Power Supply Area	VIII-46		VIII-46		VIII-46		VIII-46	
Licensed Project No.	00803		02310		01965		01943	
General Operating Characteristics								
Installed Generating Capacity (MW)	18.5		49.2		44.1		22.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	105.4		54.6		206.2		44.0	
Plant Factor Based on Nameplate Rating (percent)	65		13		53		23	
Net Peak Demand on Plant - 60 Minutes (MW)	20.2		55.0		51.0		23.0	
Net Plant Capability								
Winter Capability (MW)	18.5		54.0		49.5		22.0	
Summer Capability (MW)	18.5		54.0		49.5		22.0	
Plant Hours Connected to Load	8,291		4,673		8,402		7.700	
Planned Ultimate Capacity (MW)	18.5		49.2		44.1		22.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	507		46		0		20	
Structures and Improvements	660		739		109		458	
Reservoirs, Dams, and Waterways	11,525		8,617		696		2,720	
Equipment	1,264		4,487		886		914	
Roads, Railroads, and Bridges	181		321		1		175	
Total	14,137		14,212		1,692		4,287	
Cost per kW of Installed Capacity(dollars)	764		289		38		195	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	26	0.25	34	0.63	12	0.06	13	0.29
Water for Power	0	.00	0	.00	0	.00	0	.00
Hydraulic Expenses	114	1.08	41	.74	1	.00	1	.03
Electric Expenses	48	.46	208	3.81	46	.22	61	1.38
Miscellaneous Hydraulic Power Expenses	26	.25	63	1.16	4	.02	15	.34
Rents	33	.31	64	1.17	68	.33	29	.65
Maintenance Expenses								
Maintenance Supervision and Engineering	39	.37	66	1.20	34	.16	28	.64
Maintenance of Structures	32	.31	0	.00	0	.00	33	.74
Maintenance of Reservoirs, Dams, and Waterways	223	2.11	-1,695	.00	3	.02	7	.15
Maintenance of Electric Plant	17	.16	253	4.64	43	.21	39	.89
Maintenance of Miscellaneous Hydraulic Plant	10	.10	115	2.11	0	.00	0	.01
Total, Exclusive of Pumping	568	5.39	-851	15.60	211	1.02	226	5.13
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	568	5.39	-851	15.60	211	1.02	226	5.13
Hydraulic Data								
Drainage Area (square miles)	108		194		195		207	
Area of Pond at Normal Full-Pond Level (acres)	15		21		21		-	
Pondage from Maximum Draw-Down (acre-feet)	188		97		97		165	
Gross Head (feet)	1,530.00		1,372.00		1,369.00		643.00	
Flow at Full Station Load (cfs per kW)	.0095		.0118		.0105		.0227	
Average Number of Employees	[1] NR		6		[2] NR		[2] NR	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1963		1913		1965		1943	

[1] Attended by 2 roving operators headquartered at Camp 1.

[2] Operated remotely from Drum No. 1.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Pacific Gas & Electric Co			
Name of Plant	El Dorado	Electra	Hess	Halsey
Post Office	Placerville	Jackson, CA	Fresno, CA	Auburn, CA
Location of Plant (County and State)	El Dorado CA	Amador CA	Fresno CA	Placer CA
River	S.F. American	Mokelumne	N.F. Kings	Dry Creek
Region and Power Supply Area	VIII-46	VIII-46	VIII-46	VIII-46
Licensed Project No.	01924	00137	01988	02310
General Operating Characteristics				
Installed Generating Capacity (MW)	20.0	89.1	135.0	12.0
Pumping Energy - Pumped Storage (million kWh)	-	-	-	-
Net Generation (million kWh)	53.0	233.6	227.3	60.8
Plant Factor Based on Nameplate Rating (percent)	30	30	19	58
Net Peak Demand on Plant - 60 Minutes (MW)	21.5	92.0	148.0	10.4
Net Plant Capability				
Winter Capability (MW)	21.0	89.1	144.0	11.0
Summer Capability (MW)	21.0	89.1	144.0	11.0
Plant Hours Connected to Load	5,419	8,234	3,541	8,101
Planned Ultimate Capacity (MW)	20.0	89.1	135.0	12.0
Historical Plant Cost (thousand dollars)				
Land and Land Rights	227	218	9	18
Structures and Improvements	784	1,118	3,625	163
Reservoirs, Dams, and Waterways	26,560	14,282	15,209	2,060
Equipment	2,059	7,761	6,843	773
Roads, Railroads, and Bridges	277	176	130	2
Total	29,907	23,555	25,817	3,016
Cost per kW of Installed Capacity(dollars)	1,495	264	191	251

Power Production Expenses	El Dorado $1,000	El Dorado Mills/kWh	Electra $1,000	Electra Mills/kWh	Hess $1,000	Hess Mills/kWh	Halsey $1,000	Halsey Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	38	0.71	16	0.07	20	0.09	7	0.12
Water for Power	0	.00	0	.00	0	.00	0	.00
Hydraulic Expenses	275	5.19	50	.21	8	.03	20	.34
Electric Expenses	71	1.34	90	.39	52	.23	99	1.63
Miscellaneous Hydraulic Power Expenses	51	.96	35	.15	57	.25	14	.23
Rents	55	1.05	114	.49	137	.60	17	.27
Maintenance Expenses								
Maintenance Supervision and Engineering	96	1.82	22	.10	46	.20	22	.36
Maintenance of Structures	51	.96	0	.00	2	.01	0	.00
Maintenance of Reservoirs, Dams, and Waterways	621	11.71	18	.08	4	.02	6	.09
Maintenance of Electric Plant	92	1.73	65	.28	161	.71	39	.64
Maintenance of Miscellaneous Hydraulic Plant	31	.59	4	.02	8	.03	0	.00
Total, Exclusive of Pumping	1,381	26.06	414	1.77	493	2.17	224	3.68
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	1,381	26.06	414	1.77	493	2.17	224	3.68

Hydraulic Data	El Dorado	Electra	Hess	Halsey
Drainage Area (square miles)	217	363	177	299
Area of Pond at Normal Full-Pond Level (acres)	23	40	1,022	18
Pondage from Maximum Draw-Down (acre-feet)	210	909	12,840	86
Gross Head (feet)	1,910.00	1,268.00	2,445.00	328.00
Flow at Full Station Load (cfs per kW)	.0900	.0116	.0057	.0500
Average Number of Employees	[1] NR	2	[2] NR	[3] NR
Type of Plant Operation	Conventional	Conventional	Conventional	Conventional
Initial Year of Plant Operation	1924	1948	1958	1916

[1] Attended by 2 roving operators headquartered at Camp 5.

[2] Operated remotely from Fresno.

[3] Attended by 3 relief operators headquartered at Wise.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Pacific Gas & Electric Co							
Name of Plant	Helms		James B Black		Kerckhoff		Kerckhoff 2	
Post Office			Montgomery Creek, CA		Auberry, CA		Auberry, CA	
Location of Plant (County and State)	Fresno Co CA		Shasta CA		Fresno CA		Fresno CA	
River			Pit		San Joaquin		San Joaquin	
Region and Power Supply Area	VIII-46		VIII-46		VIII-46		VIII-46	
Licensed Project No.			02106		00096		00096	
General Operating Characteristics								
Installed Generating Capacity (MW)	1,050.0		154.8		34.1		139.5	
Pumping Energy - Pumped Storage (million kWh)	958.4		-		-		-	
Net Generation (million kWh)	584.1		561.7		7.0		306.2	
Plant Factor Based on Nameplate Rating (percent)	6		41		2		25	
Net Peak Demand on Plant - 60 Minutes (MW)	1,200.0		172.0		35.0		157.0	
Net Plant Capability								
Winter Capability (MW)	1,053.0		172.0		38.0		149.0	
Summer Capability (MW)	1,053.0		172.0		38.0		149.0	
Plant Hours Connected to Load	3,204		8,051		818		3,747	
Planned Ultimate Capacity (MW)	-		155.0		34.1		-	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	509		3,661		3		618	
Structures and Improvements	174,383		1,779		805		29,390	
Reservoirs, Dams, and Waterways	457,312		53,206		4,540		77,308	
Equipment	235,096		6,615		1,498		37,430	
Roads, Railroads, and Bridges	9,134		1,091		110		7,907	
Total	876,435		66,352		6,956		152,653	
Cost per kW of Installed Capacity(dollars)	835		429		204		1,094	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	86	0.15	16	0.03	13	1.90	11	0.04
Water for Power	0	.00	0	.00	204	29.17	0	.00
Hydraulic Expenses	251	.43	93	.17	18	2.55	5	.02
Electric Expenses	673	1.15	123	.22	40	5.79	40	.13
Miscellaneous Hydraulic Power Expenses	596	1.02	34	.06	40	5.78	21	.07
Rents	896	1.53	191	.34	39	5.63	167	.55
Maintenance Expenses								
Maintenance Supervision and Engineering	153	.26	27	.05	27	3.87	34	.11
Maintenance of Structures	69	.12	1	.00	0	.04	1	.00
Maintenance of Reservoirs, Dams, and Waterways	3	.01	79	.14	7	1.02	2	.01
Maintenance of Electric Plant	822	1.41	50	.09	82	11.77	116	.38
Maintenance of Miscellaneous Hydraulic Plant	59	.10	98	.18	8	1.10	9	.03
Total, Exclusive of Pumping	3,610	6.18	712	1.27	480	68.63	405	1.32
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	3,610	6.18	712	1.27	480	68.63	405	1.32
Hydraulic Data								
Drainage Area (square miles)	39		11		1,530		-	
Area of Pond at Normal Full-Pond Level (acres)	-		499		160		-	
Pondage from Maximum Draw-Down (acre-feet)	-		22,748		1,084		1,084	
Gross Head (feet)	-		1,226.00		350.00		350.00	
Flow at Full Station Load (cfs per kW)	-		.0117		.0450		-	
Average Number of Employees	10		[1] NR		[2] NR		[2] NR	
Type of Plant Operation	Pumped Storage		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1984		1965		1920		1983	

[1] Operated remotely from Pit No. 5.

[2] Attended by 5 roving operators headquartered at A. G. Wishon.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Pacific Gas & Electric Co							
Name of Plant	Kings River		Newcastle		Pit No 1		Pit No 3	
Post Office	Fresno, CA				Fall River Mills, CA		Burney, CA	
Location of Plant (County and State)	Fresno CA		Placer CA		Shasta CA		Shasta CA	
River	N.F. Kings		American		Pit		Pit	
Region and Power Supply Area	VIII-46		VIII-46		VIII-46		VIII-46	
Licensed Project No.	01988		02310		02687		00233	
	General Operating Characteristics							
Installed Generating Capacity (MW)	44.1		12.7		56.0		80.2	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	85.3		30.8		291.2		410.7	
Plant Factor Based on Nameplate Rating (percent)	22		28		59		58	
Net Peak Demand on Plant - 60 Minutes (MW)	54.0		12.0		62.0		71.0	
Net Plant Capability								
Winter Capability (MW)	52.0		11.0		61.0		70.0	
Summer Capability (MW)	52.0		11.0		61.0		70.0	
Plant Hours Connected to Load	4,597		3,475		8,760		8,707	
Planned Ultimate Capacity (MW)	44.1		-		56.0		80.2	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	8		656		2,490		386	
Structures and Improvements	694		4,696		1,092		781	
Reservoirs, Dams, and Waterways	7,117		10,058		5,189		9,364	
Equipment	2,769		5,505		4,215		3,936	
Roads, Railroads, and Bridges	31		2,147		49		410	
Total	10,619		23,062		13,034		14,877	
Cost per kW of Installed Capacity(dollars)	241		1,816		233		186	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	20	0.23	0	0.00	15	0.05	29	0.07
Water for Power	54	.63	0	.00	49	.17	0	.00
Hydraulic Expenses	5	.06	0	.00	69	.24	55	.13
Electric Expenses	22	.26	0	.01	186	.64	126	.31
Miscellaneous Hydraulic Power Expenses	23	.27	0	.00	71	.24	97	.24
Rents	48	.56	10	.31	105	.36	108	.26
Maintenance Expenses								
Maintenance Supervision and Engineering	39	.45	0	.00	27	.09	49	.12
Maintenance of Structures	0	.01	0	.00	10	.03	4	.01
Maintenance of Reservoirs, Dams, and Waterways	7	.08	0	.01	109	.37	27	.06
Maintenance of Electric Plant	37	.44	16	.52	65	.22	103	.25
Maintenance of Miscellaneous Hydraulic Plant	9	.10	0	.01	7	.02	31	.07
Total, Exclusive of Pumping	263	3.09	26	.86	713	2.45	627	1.53
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	263	3.09	26	.86	713	2.45	627	1.53
	Hydraulic Data							
Drainage Area (square miles)	246		-		676		4,747	
Area of Pond at Normal Full-Pond Level (acres)	7		-		222		1,264	
Pondage from Maximum Draw-Down (acre-feet)	135		-		600		14,443	
Gross Head (feet)	798.00		-		454.00		315.00	
Flow at Full Station Load (cfs per kW)	.0172		-		.0350		.0460	
Average Number of Employees	[1] NR		-		[2] NR		6	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1962				1922		1925	

[1] Operated remotely from Fresno.

[2] Operated remotely from Pit No. 3.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Pacific Gas & Electric Co			
Name of Plant	Pit No 4	Pit No 5	Pit No 6	Pit No 7
Post Office	Montgomery Creek, CA	Montgomery Creek, CA	Montgomery Creek, CA	Montgomery Creek, CA
Location of Plant (County and State)	Shasta CA	Shasta CA	Shasta CA	Shasta CA
River	Pit	Pit	Pit	Pit
Region and Power Supply Area	VIII-46	VIII-46	VIII-46	VIII-46
Licensed Project No.	00233	00233	02106	02106
General Operating Characteristics				
Installed Generating Capacity (MW)	90.0	140.6	79.2	104.4
Pumping Energy - Pumped Storage (million kWh)	-	-	-	-
Net Generation (million kWh)	520.6	886.6	322.9	450.7
Plant Factor Based on Nameplate Rating (percent)	66	72	47	49
Net Peak Demand on Plant - 60 Minutes (MW)	98.0	162.0	80.0	115.0
Net Plant Capability				
Winter Capability (MW)	95.0	156.0	80.0	112.0
Summer Capability (MW)	95.0	156.0	80.0	112.0
Plant Hours Connected to Load	8,760	8,640	8,747	8,759
Planned Ultimate Capacity (MW)	90.0	140.6	79.2	104.4
Historical Plant Cost (thousand dollars)				
Land and Land Rights	20	120	27	13
Structures and Improvements	1,305	2,665	2,170	1,909
Reservoirs, Dams, and Waterways	20,262	24,081	16,814	21,350
Equipment	6,411	6,681	3,843	4,468
Roads, Railroads, and Bridges	577	977	682	401
Total	28,575	34,525	23,536	28,141
Cost per kW of Installed Capacity(dollars)	318	246	297	270

	Pit No 4		Pit No 5		Pit No 6		Pit No 7	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	14	0.03	28	0.03	13	0.04	13	0.03
Water for Power	0	.00	0	.00	0	.00	0	.00
Hydraulic Expenses	30	.06	71	.08	47	.14	48	.11
Electric Expenses	115	.22	236	.27	75	.23	83	.18
Miscellaneous Hydraulic Power Expenses	36	.07	80	.09	23	.07	28	.06
Rents	131	.25	204	.23	100	.31	138	.31
Maintenance Expenses								
Maintenance Supervision and Engineering	24	.05	47	.05	22	.07	22	.05
Maintenance of Structures	2	.00	25	.03	3	.01	6	.01
Maintenance of Reservoirs, Dams, and Waterways	47	.09	220	.25	18	.06	26	.06
Maintenance of Electric Plant	68	.13	299	.34	57	.18	74	.17
Maintenance of Miscellaneous Hydraulic Plant	58	.11	118	.13	21	.07	18	.04
Total, Exclusive of Pumping	524	1.01	1,330	1.50	378	1.17	456	1.01
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	524	1.01	1,330	1.50	378	1.17	456	1.01

Hydraulic Data	Pit No 4	Pit No 5	Pit No 6	Pit No 7
Drainage Area (square miles)	4,784	4,900	5,451	5,601
Area of Pond at Normal Full-Pond Level (acres)	105	-	279	468
Pondage from Maximum Draw-Down (acre-feet)	1,198	407	8,605	15,361
Gross Head (feet)	362.00	615.00	155.00	205.00
Flow at Full Station Load (cfs per kW)	.0380	.0250	.0660	.0728
Average Number of Employees	[1] NR	6	[2] NR	[2] NR
Type of Plant Operation	Conventional	Conventional	Conventional	Conventional
Initial Year of Plant Operation	1955	1944	1965	1965

[1] Operated remotely from Pit No. 3.

[2] Operated remotely from Pit No. 5.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Pacific Gas & Electric Co							
Name of Plant	Poe		Rock Creek		Salt Springs		Stanislaus	
Post Office	Storrie, CA		Storrie, CA		Jackson, CA		Angels Camp, CA	
Location of Plant (County and State)	Butte CA		Plumas CA		Amador CA		Tuolumne CA	
River	N.F. Feather		N.F. Feather		N.F. Mokelumne		N.F. Stanislaus	
Region and Power Supply Area	VIII-46		VIII-46		VIII-46		VIII-46	
Licensed Project No.	02107		01962		00137		02130	
	General Operating Characteristics							
Installed Generating Capacity (MW)	142.8		113.4		39.1		81.9	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	383.4		325.2		110.6		212.5	
Plant Factor Based on Nameplate Rating (percent)	31		33		32		30	
Net Peak Demand on Plant - 60 Minutes (MW)	125.0		118.0		43.6		92.0	
Net Plant Capability								
Winter Capability (MW)	120.0		112.0		44.0		91.0	
Summer Capability (MW)	120.0		112.0		44.0		91.0	
Plant Hours Connected to Load	8,641		8,571		5,349		7,231	
Planned Ultimate Capacity (MW)	143.0		113.4		39.1		82.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	677		1,816		0		259	
Structures and Improvements	2,117		2,273		537		949	
Reservoirs, Dams, and Waterways	28,477		33,431		4,339		7,350	
Equipment	7,054		4,725		2,015		3,587	
Roads, Railroads, and Bridges	1,078		354		185		885	
Total	39,403		42,599		7,076		12,730	
Cost per kW of Installed Capacity(dollars)	276		376		181		155	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	8	0.02	16	0.05	18	0.17	24	0.11
Water for Power	0	.00	0	.00	0	.00	434	2.04
Hydraulic Expenses	47	.12	29	.09	11	.10	44	.21
Electric Expenses	67	.18	218	.67	42	.38	79	.37
Miscellaneous Hydraulic Power Expenses	26	.07	41	.13	46	.42	46	.21
Rents	77	.20	138	.43	55	.50	137	.65
Maintenance Expenses								
Maintenance Supervision and Engineering	25	.06	32	.10	25	.23	33	.16
Maintenance of Structures	6	.02	15	.05	12	.11	2	.01
Maintenance of Reservoirs, Dams, and Waterways	75	.20	602	1.85	4	.03	39	.18
Maintenance of Electric Plant	283	.74	94	.29	39	.35	284	1.34
Maintenance of Miscellaneous Hydraulic Plant	37	.10	12	.04	3	.02	5	.03
Total, Exclusive of Pumping	651	1.70	1,197	3.68	256	2.31	1,126	5.30
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	651	1.70	1,197	3.68	256	2.31	1,126	5.30
	Hydraulic Data							
Drainage Area (square miles)	1,950		1,760		221		360	
Area of Pond at Normal Full-Pond Level (acres)	52		115		1,488		16	
Pondage from Maximum Draw-Down (acre-feet)	478		2,525		274,824		307	
Gross Head (feet)	477.00		535.00		256.00		1,525.00	
Flow at Full Station Load (cfs per kW)	.0330		.0262		-		-	
Average Number of Employees	[1] NR		6		2		[2] NR	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1958		1950		1931		1963	

[1] Operated remotely from Rock Creek.

[2] Operated remotely from Angel's Operating Center.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Pacific Gas & Electric Co						Pacific Power & Light Co	
Name of Plant	Tiger Creek		West Point		Wise		Copco No 1	
Post Office	Jackson, CA		Jackson, CA		Auburn, CA		Hornbrook, CA	
Location of Plant (County and State)	Amador CA		Amador CA		Placer CA		Siskiyou CA	
River	N.F. Mokelumne		N.F. Mokelumne		Auburn, Ravine		Klamath	
Region and Power Supply Area	VIII-46		VIII-46		VIII-46		VIII-46	
Licensed Project No.	00137		00137		02310		02082	
General Operating Characteristics								
Installed Generating Capacity (MW)	51.0		13.6		12.0		20.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	192.1		58.3		73.2		93.6	
Plant Factor Based on Nameplate Rating (percent)	43		49		70		53	
Net Peak Demand on Plant - 60 Minutes (MW)	58.0		14.5		14.5		26.0	
Net Plant Capability								
Winter Capability (MW)	58.0		14.5		14.0		25.0	
Summer Capability (MW)	58.0		14.5		14.0		20.0	
Plant Hours Connected to Load	7,756		8,142		8,026		7,967	
Planned Ultimate Capacity (MW)	51.0		14.0		12.0		20.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	14		92		74		103	
Structures and Improvements	841		467		151		362	
Reservoirs, Dams, and Waterways	11,360		3,499		13,259		1,713	
Equipment	1,971		1,313		1,243		939	
Roads, Railroads, and Bridges	392		37		24		3	
Total	14,577		5,409		14,751		3,120	
Cost per kW of Installed Capacity(dollars)	288		398		1,229		156	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	41	0.21	5	0.09	12	0.16	10	0.11
Water for Power	3	.02	0	.00	0	.00	0	.00
Hydraulic Expenses	145	.75	5	.09	11	.15	36	.38
Electric Expenses	333	1.73	20	.33	124	1.69	87	.93
Miscellaneous Hydraulic Power Expenses	58	.30	8	.15	29	.40	7	.08
Rents	87	.46	21	.36	22	.30	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	62	.32	8	.14	27	.37	0	.00
Maintenance of Structures	7	.04	0	.00	0	.00	2	.02
Maintenance of Reservoirs, Dams, and Waterways	348	1.81	8	.14	104	1.41	11	.11
Maintenance of Electric Plant	51	.27	39	.67	43	.59	38	.40
Maintenance of Miscellaneous Hydraulic Plant	5	.03	2	.03	2	.03	0	.00
Total, Exclusive of Pumping	1,141	5.94	116	1.99	374	5.11	191	2.04
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	1,141	5.94	116	1.99	374	5.11	191	2.04
Hydraulic Data								
Drainage Area (square miles)	262		356		305		4,300	
Area of Pond at Normal Full-Pond Level (acres)	23		69		9		964	
Pondage from Maximum Draw-Down (acre-feet)	42		1,007		19		12,500	
Gross Head (feet)	1,219.00		312.00		519.00		125.00	
Flow at Full Station Load (cfs per kW)	.0120		.0460		.0300		.1180	
Average Number of Employees	6		[1] NR		6		[2] 16	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1931		1948		1917		1918	

[1] Operated remotely from Tiger Creek.

[2] Represents all licensed No. 2082 projects in California.

NR = Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Pacific Power & Light Co		Placer County Water Agency	
Name of Plant	Copco No 2	Iron Gate	French Meadows	Middle Fork
Post Office	Hornbrook, CA	Hornbrook, CA	Foresthill, CA	Foresthill, Ca
Location of Plant (County and State)	Siskiyou CA	Siskiyou CA	Placer CA	Placer CA
River	Klamath	Klamath	Rubicon	N.F. American
Region and Power Supply Area	VII-45	VII-45	VIII-46	VIII-46
Licensed Project No.	02082	02082	02079	02079
General Operating Characteristics				
Installed Generating Capacity (MW)	27.0	18.0	15.3	109.8
Pumping Energy - Pumped Storage (million kWh)	–	–	–	–
Net Generation (million kWh)	122.0	114.0	25.3	192.0
Plant Factor Based on Nameplate Rating (percent)	52	72	19	20
Net Peak Demand on Plant - 60 Minutes (MW)	31.0	20.0	17.0	130.0
Net Plant Capability				
Winter Capability (MW)	29.5	19.5	17.0	132.0
Summer Capability (MW)	27.0	20.0	17.0	125.0
Plant Hours Connected to Load	7,966	8,344	1,742	5,909
Planned Ultimate Capacity (MW)	27.0	18.0	15.3	107.8
Historical Plant Cost (thousand dollars)				
Land and Land Rights	19	268	10	10
Structures and Improvements	729	2,384	2	4
Reservoirs, Dams, and Waterways	2,537	7,581	16	16
Equipment	1,205	1,318	1	73
Roads, Railroads, and Bridges	186	563	1	2
Total	4,676	12,114	30	106
Cost per kW of Installed Capacity(dollars)	173	673	2	1

Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	17	0.14	7	0.06	5	0.22	5	0.03
Water for Power	0	.00	0	.00	0	.00	0	.00
Hydraulic Expenses	0	.00	46	.40	13	.53	13	.07
Electric Expenses	34	.28	78	.68	9	.34	[1] 32	.17
Miscellaneous Hydraulic Power Expenses	15	.12	25	.22	22	.86	22	.11
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	7	.06	0	.00	5	.22	5	.03
Maintenance of Structures	14	.12	2	.02	5	.16	9	.05
Maintenance of Reservoirs, Dams, and Waterways	1	.01	21	.19	132	5.23	35	.18
Maintenance of Electric Plant	60	.49	32	.28	19	.75	47	.24
Maintenance of Miscellaneous Hydraulic Plant	7	.05	7	.06	3	.11	8	.04
Total, Exclusive of Pumping	155	1.27	218	1.91	213	8.43	177	.92
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	155	1.27	218	1.91	213	8.43	177	.92

Hydraulic Data	Copco No 2	Iron Gate	French Meadows	Middle Fork
Drainage Area (square miles)	4,300	4,500	47	113
Area of Pond at Normal Full-Pond Level (acres)	984	981	1,430	1,245
Pondage from Maximum Draw-Down (acre-feet)	12,500	19,131	123,800	201,200
Gross Head (feet)	125.00	156.00	654.00	2.00
Flow at Full Station Load (cfs per kW)	.1050	.0930	–	–
Average Number of Employees	[2] NR	[2] NR	1	1
Type of Plant Operation	Conventional	Conventional	Conventional	Conventional
Initial Year of Plant Operation	1925	1962	1966	1966

---

[1] Auxiliary power usage was approximately 3 times that of 1986.

[2] Included in Copco No. 1.

NR=Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Placer County Water Agency	Sacramento Municipal Util Dist		
Name of Plant	Ralston	Camino	Jaybird	Jones Fork
Post Office	Forecthill, CA	Pollock Pines, CA	Pollock Pines, CA	
Location of Plant (County and State)	Placer CA	El Dorado CA	El Dorado CA	El Dorado CA
River	Rubican	Silver Creek	Silver Creek	S Fork Silver Creek
Region and Power Supply Area	VIII-46	VIII-46	VIII-46	VIII-46
Licensed Project No.	02079	02101	02101	02101
General Operating Characteristics				
Installed Generating Capacity (MW)	79.2	142.5	133.0	10.0
Pumping Energy - Pumped Storage (million kWh)	-	-	-	-
Net Generation (million kWh)	136.6	216.2	310.0	14.3
Plant Factor Based on Nameplate Rating (percent)	20	17	27	16
Net Peak Demand on Plant - 60 Minutes (MW)	86.0	143.1	152.7	-
Net Plant Capability				
Winter Capability (MW)	86.3	150.0	139.0	10.0
Summer Capability (MW)	86.3	150.0	139.0	10.0
Plant Hours Connected to Load	4,114	5,125	5,456	1,614
Planned Ultimate Capacity (MW)	79.2	142.5	133.0	-
Historical Plant Cost (thousand dollars)				
Land and Land Rights	10	NR	NR	NR
Structures and Improvements	4	NR	NR	NR
Reservoirs, Dams, and Waterways	16	NR	NR	NR
Equipment	1	0	0	0
Roads, Railroads, and Bridges	1	NR	NR	NR
Total	33	NR	NR	NR
Cost per kW of Installed Capacity(dollars)	0	NR	NR	NR

	Ralston		Camino		Jaybird		Jones Fork	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	5	0.04	NR	-	NR	-	NR	-
Water for Power	0	.00	NR	-	NR	-	NR	-
Hydraulic Expenses	13	.10	NR	-	NR	-	NR	-
Electric Expenses	15	.11	NR	-	NR	-	NR	-
Miscellaneous Hydraulic Power Expenses	22	.16	NR	-	NR	-	NR	-
Rents	0	.00	NR	-	NR	-	NR	-
Maintenance Expenses								
Maintenance Supervision and Engineering	5	.04	NR	-	NR	-	NR	-
Maintenance of Structures	9	.07	NR	-	NR	-	NR	-
Maintenance of Reservoirs, Dams, and Waterways	40	.29	NR	-	NR	-	NR	-
Maintenance of Electric Plant	29	.21	NR	-	NR	-	NR	-
Maintenance of Miscellaneous Hydraulic Plant	5	.04	NR	-	NR	-	NR	-
Total, Exclusive of Pumping	144	1.04	NR	-	NR	-	NR	-
Cost of Pumping Energy	0	.00	0	0.00	0	0.00	0	0.00
Total Production Expenses	144	1.04	0	.00	0	.00	0	.00

	Ralston	Camino	Jaybird	Jones Fork
Hydraulic Data				
Drainage Area (square miles)	33	250	227	28
Area of Pond at Normal Full-Pond Level (acres)	7	19	64	760
Pondage from Maximum Draw-Down (acre-feet)	132	638	2,380	36,360
Gross Head (feet)	1.00	1,061.00	1,530.00	612.00
Flow at Full Station Load (cfs per kW)	-	.0131	.0094	-
Average Number of Employees	1	NR	NR	NR
Type of Plant Operation	Conventional	Conventional	Conventional	Conventional
Initial Year of Plant Operation	1966	1963	1961	1985

NR = Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Sacramento Municipal Util Dist							
Name of Plant	Loon Lake		Robbs Peak		Union Valley		White Rock	
Post Office	Placerville, CA		Pollock Pines, CA		Pollock Pines, CA		Placerville, CA	
Location of Plant (County and State)	El Dorado CA		El Dorado CA		El Dorado CA		El Dorado CA	
River	Gerle Creek		Silver Creek		Silver Creek		S.F. American	
Region and Power Supply Area	VIII-46		VIII-46		VIII-46		VIII-46	
Licensed Project No.			02101		02101			
General Operating Characteristics								
Installed Generating Capacity (MW)	74.1		23.8		33.3		190.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	55.8		24.4		63.3		266.1	
Plant Factor Based on Nameplate Rating (percent)	9		12		22		16	
Net Peak Demand on Plant - 60 Minutes (MW)	66.2		25.8		40.3		235.2	
Net Plant Capability								
Winter Capability (MW)	82.0		22.0		37.0		223.0	
Summer Capability (MW)	82.0		22.0		37.0		223.0	
Plant Hours Connected to Load	1,693		3,302		2,625		3,979	
Planned Ultimate Capacity (MW)	74.1		23.8		33.3		190.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	NR		NR		NR		NR	
Structures and Improvements	NR		NR		NR		NR	
Reservoirs, Dams, and Waterways	NR		NR		NR		NR	
Equipment	0		0		0		0	
Roads, Railroads, and Bridges	NR		NR		NR		NR	
Total	NR		NR		NR		NR	
Cost per kW of Installed Capacity(dollars)	NR		NR		NR		NR	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	NR	-	NR	-	NR	-	NR	-
Water for Power	NR	-	NR	-	NR	-	NR	-
Hydraulic Expenses	NR	-	NR	-	NR	-	NR	-
Electric Expenses	NR	-	NR	-	NR	-	NR	-
Miscellaneous Hydraulic Power Expenses	NR	-	NR	-	NR	-	NR	-
Rents	NR	-	NR	-	NR	-	NR	-
Maintenance Expenses								
Maintenance Supervision and Engineering	NR	-	NR	-	NR	-	NR	-
Maintenance of Structures	NR	-	NR	-	NR	-	NR	-
Maintenance of Reservoirs, Dams, and Waterways	NR	-	NR	-	NR	-	NR	-
Maintenance of Electric Plant	NR	-	NR	-	NR	-	NR	-
Maintenance of Miscellaneous Hydraulic Plant	NR	-	NR	-	NR	-	NR	-
Total, Exclusive of Pumping	NR	-	NR	-	NR	-	NR	-
Cost of Pumping Energy	0	0.00	0	0.00	0	0.00	0	0.00
Total Production Expenses	0	.00	0	.00	0	.00	0	.00
Hydraulic Data								
Drainage Area (square miles)	41		80		167		493	
Area of Pond at Normal Full-Pond Level (acres)	1,450		70		2,860		165	
Pondage from Maximum Draw-Down (acre-feet)	73,000		360		254,000		16,000	
Gross Head (feet)	1,140.00		4,000.00		430.00		854.00	
Flow at Full Station Load (cfs per kW)	.0120		.0400		.0273		.0156	
Average Number of Employees	NR		NR		NR		NR	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1971		1965		1963		1966	

NR = Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	San Francisco Public Util Comm						Southern California Edison Co	
Name of Plant	Dion R Holm		Moccasin		Robert C Kirkwood		Big Creek No 1	
Post Office	Groveland, CA		Moccasin, CA		Groveland, CA		Big Creek CA	
Location of Plant (County and State)	Tuolumne CA		Tuolumne CA		Tuolumne CA		Fresno CA	
River	Cherry		Tuolumne		Tuolumne		Big Creek	
Region and Power Supply Area	VIII-46		VIII-46		VIII-46		VIII-47	
Licensed Project No.							21750	
General Operating Characteristics								
Installed Generating Capacity (MW)	135.0		90.0		67.5		70.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	421.6		409.4		412.8		530.3	
Plant Factor Based on Nameplate Rating (percent)	36		52		70		86	
Net Peak Demand on Plant - 60 Minutes (MW)	150.0		104.0		24.0		82.0	
Net Plant Capability								
Winter Capability (MW)	142.0		99.0		72.0		82.9	
Summer Capability (MW)	137.0		99.0		66.0		82.9	
Plant Hours Connected to Load	8,760		8,760		8,760		8,760	
Planned Ultimate Capacity (MW)	135.0		90.0		67.5		700.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	0		0		0		0	
Structures and Improvements	2,000		3,533		6,088		5,395	
Reservoirs, Dams, and Waterways	6,985		5,627		9,419		4,059	
Equipment	4,509		2,579		2,136		3,803	
Roads, Railroads, and Bridges	512		13		630		39	
Total	14,006		11,952		18,273		13,297	
Cost per kW of Installed Capacity(dollars)	104		133		271		190	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	NR	-	NR	-	NR	-	394	0.74
Water for Power	NR	-	NR	-	NR	-	120	.23
Hydraulic Expenses	NR	-	NR	-	NR	-	5	.01
Electric Expenses	NR	-	NR	-	NR	-	303	.57
Miscellaneous Hydraulic Power Expenses	NR	-	NR	-	NR	-	507	.96
Rents	NR	-	NR	-	NR	-	85	.16
Maintenance Expenses								
Maintenance Supervision and Engineering	NR	-	NR	-	NR	-	194	.37
Maintenance of Structures	NR	-	NR	-	NR	-	340	.64
Maintenance of Reservoirs, Dams, and Waterways	NR	-	NR	-	NR	-	120	.23
Maintenance of Electric Plant	NR	-	NR	-	NR	-	258	.49
Maintenance of Miscellaneous Hydraulic Plant	NR	-	NR	-	NR	-	46	.09
Total, Exclusive of Pumping	NR	-	NR	-	NR	-	2,372	4.47
Cost of Pumping Energy	-2	0.00	-2	0.00	-2	0.00	0	.00
Total Production Expenses	0	.00	0	.00	0	.00	2,372	4.47
Hydraulic Data								
Drainage Area (square miles)	193		520		430		4,200	
Area of Pond at Normal Full-Pond Level (acres)	1,820		52		364,000		14,360	
Pondage from Maximum Draw-Down (acre-feet)	39,800		2,100		50,000		891,660	
Gross Head (feet)	2,481.00		1,257.00		1,450.00		1,310.00	
Flow at Full Station Load (cfs per kW)	.0617		-		.0104		-	
Average Number of Employees	2		16		2		6	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1960		1969		1967		1930	

NR = Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Southern California Edison Co							
Name of Plant	Big Creek No 2		Big Creek No 2A		Big Creek No 3		Big Creek No 4	
Post Office	Big Creek		Big Creek CA		Auberry CA		North Fork CA	
Location of Plant (County and State)	Fresno CA		Fresno CA		Fresno CA		Fresno CA	
River	Big Creek		Big Creek		San Joaquin		San Joaquin	
Region and Power Supply Area	VIII-46		VIII-46		VIII-47		VIII-47	
Licensed Project No.	21750		00670		01200		20170	
General Operating Characteristics								
Installed Generating Capacity (MW)	63.0		110.0		150.5		92.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	450.7		249.9		605.3		299.9	
Plant Factor Based on Nameplate Rating (percent)	82		26		46		37	
Net Peak Demand on Plant - 60 Minutes (MW)	68.0		99.0		165.0		100.0	
Net Plant Capability								
Winter Capability (MW)	67.1		98.2		161.9		100.2	
Summer Capability (MW)	67.1		96.5		161.9		100.2	
Plant Hours Connected to Load	8,760		7,921		3,760		8,716	
Planned Ultimate Capacity (MW)	578.0		800.0		1,430.0		840.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	1		0		6		104	
Structures and Improvements	1,240		993		4,836		1,551	
Reservoirs, Dams, and Waterways	3,610		4,666		18,627		14,569	
Equipment	3,846		7,435		17,048		6,199	
Roads, Railroads, and Bridges	0		13		749		83	
Total	8,697		13,107		41,267		22,506	
Cost per kW of Installed Capacity(dollars)	138		119		274		245	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	56	0.12	43	0.17	331	0.55	65	0.22
Water for Power	102	.23	132	.53	226	.37	130	.43
Hydraulic Expenses	30	.07	280	1.12	210	.35	263	.88
Electric Expenses	34	.07	31	.12	349	.58	70	.23
Miscellaneous Hydraulic Power Expenses	76	.17	19	.08	231	.38	29	.10
Rents	73	.16	115	.46	38	.06	94	.31
Maintenance Expenses								
Maintenance Supervision and Engineering	68	.15	83	.33	174	.29	54	.18
Maintenance of Structures	13	.03	7	.03	158	.26	13	.04
Maintenance of Reservoirs, Dams, and Waterways	100	.22	146	.59	169	.28	208	.69
Maintenance of Electric Plant	175	.39	799	3.20	261	.43	126	.42
Maintenance of Miscellaneous Hydraulic Plant	21	.05	17	.07	131	.22	100	.33
Total, Exclusive of Pumping	747	1.66	1,672	6.69	2,278	3.76	1,152	3.84
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	747	1.66	1,672	6.69	2,278	3.76	1,152	3.84
Hydraulic Data								
Drainage Area (square miles)	4,260		4,740		12,190		12,920	
Area of Pond at Normal Full-Pond Level (acres)	40		21,840		300		4,650	
Pondage from Maximum Draw-Down (acre-feet)	560		1,352,830		9,930		261,190	
Gross Head (feet)	8,750.00		4,180.00		6,270.00		4,160.00	
Flow at Full Station Load (cfs per kW)	-		-		-		-	
Average Number of Employees	[1] NR		[1] NR		6		[2] NR	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1930		1960		1930		1910	

---

[1] Operated remotely from Big Creek No. 8.

[2] Operated remotely from Big Creek No. 3.

NR=Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Southern California Edison Co							
Name of Plant	Big Creek No 8		Kern River No 1		Kern River No 3		Mammoth Pool	
Post Office	Big Creek CA		Bakersfield CA		Kernville CA		Auberry, CA	
Location of Plant (County and State)	Fresno CA		Kern CA		Kern CA		Fresno CA	
River	Big Creek		Kern		Kern		San Joaquin	
Region and Power Supply Area	VIII-46		VIII-46		VIII-46		VIII-47	
Licensed Project No.	00670						02085	
General Operating Characteristics								
Installed Generating Capacity (MW)	61.5		24.8		32.0		181.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	277.1		176.7		138.0		349.2	
Plant Factor Based on Nameplate Rating (percent)	51		81		49		22	
Net Peak Demand on Plant - 60 Minutes (MW)	65.0		23.4		36.7		180.0	
Net Plant Capability								
Winter Capability (MW)	64.5		24.8		36.8		187.0	
Summer Capability (MW)	64.5		24.8		36.8		187.0	
Plant Hours Connected to Load	8,704		8,759		8,758		8,744	
Planned Ultimate Capacity (MW)	585.0		320.0		320.0		129.4	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	0		120		266		161	
Structures and Improvements	1,870		421		1,097		1,626	
Reservoirs, Dams, and Waterways	3,117		2,353		8,474		17,877	
Equipment	4,671		1,547		2,145		8,922	
Roads, Railroads, and Bridges	109		55		121		520	
Total	9,767		4,497		12,103		29,106	
Cost per kW of Installed Capacity(dollars)	159		181		378		161	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	226	0.82	63	0.36	141	1.02	18	0.05
Water for Power	99	.36	56	.32	34	.25	196	.57
Hydraulic Expenses	81	.29	22	.12	25	.18	7	.02
Electric Expenses	272	.98	62	.35	223	1.61	16	.05
Miscellaneous Hydraulic Power Expenses	95	.34	35	.20	60	.43	17	.05
Rents	87	.31	6	.04	17	.12	112	.32
Maintenance Expenses								
Maintenance Supervision and Engineering	138	.50	76	.43	59	.43	53	.15
Maintenance of Structures	66	.24	22	.12	46	.33	11	.03
Maintenance of Reservoirs, Dams, and Waterways	95	.34	29	.16	32	.23	27	.08
Maintenance of Electric Plant	527	1.90	192	1.09	57	.42	158	.45
Maintenance of Miscellaneous Hydraulic Plant	63	.23	19	.11	28	.21	30	.08
Total, Exclusive of Pumping	1,751	6.32	581	3.29	723	5.24	646	1.85
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	1,751	6.32	581	3.29	723	5.24	646	1.85
Hydraulic Data								
Drainage Area (square miles)	5,000		2,258		852		1,022	
Area of Pond at Normal Full-Pond Level (acres)	30		-		-		1,095	
Pondage from Maximum Draw-Down (acre-feet)	470		877		821		119,940	
Gross Head (feet)	7,130.00		-		-		11.00	
Flow at Full Station Load (cfs per kW)	-		-		-		.0123	
Average Number of Employees	6		1		7		[1] NR	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1910		1970		1910		1960	

---

[1] Operated remotely from Big Creek No. 8.

NR=Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Turlock Irrigation District		Yuba County Water Agency				Public Service Co of Colorado	
Name of Plant	Don Pedro		Colgate		New Narrows		Cabin Creek	
Post Office	Modesto, CA		Dobbins, CA		Smartsville, CA		Georgetown, CO	
Location of Plant (County and State)	La Grange CA		Yuba CA		Yuba CA		Clear Creek CO	
River	Tuolumne		N.F. Yuba		N.F. Yuba		So. Clear Creek	
Region and Power Supply Area	VIII-46		VIII-46		VIII-46		VI-32	
Licensed Project No.	02299		02246		02246		02351	
General Operating Characteristics								
Installed Generating Capacity (MW)	136.0		316.0		55.0		300.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		99.6	
Net Generation (million kWh)	367.5		754.0		125.5		61.3	
Plant Factor Based on Nameplate Rating (percent)	31		27		26		2	
Net Peak Demand on Plant - 60 Minutes (MW)	165.9		328.0		48.0		278.0	
Net Plant Capability								
Winter Capability (MW)	165.0		340.0		51.0		324.0	
Summer Capability (MW)	165.0		322.0		55.0		324.0	
Plant Hours Connected to Load	8,760		8,308		6,922		833	
Planned Ultimate Capacity (MW)	136.5		316.0		55.0		300.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	12,899		35		20		1	
Structures and Improvements	8,592		1,639		1,263		7,054	
Reservoirs, Dams, and Waterways	33,565		19,683		1,167		18,150	
Equipment	7,292		5,364		1,961		14,975	
Roads, Railroads, and Bridges	1,459		303		583		454	
Total	63,807		27,024		4,993		40,633	
Cost per kW of Installed Capacity(dollars)	467		86		91		135	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	309	0.84	0	0.00	0	0.00	166	2.71
Water for Power	0	.00	74	.10	0	.00	0	.00
Hydraulic Expenses	373	1.01	234	.31	0	.00	6	.10
Electric Expenses	951	2.59	51	.07	31	.25	211	3.44
Miscellaneous Hydraulic Power Expenses	260	.71	0	.00	0	.00	85	1.38
Rents	0	.00	50	.07	100	.80	6	.09
Maintenance Expenses								
Maintenence Supervision and Engineering	0	.00	0	.00	0	.00	182	2.97
Maintenance of Structures	47	.13	0	.00	0	.00	22	.36
Maintenance of Reservoirs, Dams, and Waterways	9	.03	802	1.06	1	.01	9	.14
Maintenance of Electric Plant	80	.22	66	.09	47	.37	45	.74
Maintenance of Miscellaneous Hydraulic Plant	50	.14	15	.02	12	.10	32	.52
Total, Exclusive of Pumping	2,081	5.66	1,293	1.71	191	1.52	763	12.45
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	2,081	5.66	1,293	1.71	191	1.52	763	12.45
Hydraulic Data								
Drainage Area (square miles)	1,553		1,350		1,110		15	
Area of Pond at Normal Full-Pond Level (acres)	12,960		960,000		45,000		53	
Pondage from Maximum Draw-Down (acre-feet)	1,721,040		726,080		4,450		1,713	
Gross Head (feet)	529.00		1,390.00		236.00		1,226.00	
Flow at Full Station Load (cfs per kW)	.0270		.1041		.0161		-	
Average Number of Employees	4		12		12		15	
Type of Plant Operation	Conventional		Conventional		Conventional		Conv/Pumped Storage	
Initial Year of Plant Operation	1971		1969		1969		1967	

NR=Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Public Service Co of Colorado		Connecticut Light & Power Co					
Name of Plant	Shoshone		Rocky River		Shepaug		Stevenson	
Post Office	Glenwood Springs, CO		New Milford, CT		Southbury, CT		Stevenson, CT	
Location of Plant (County and State)	Garfield CO		Litchfield CT		New Haven CT		Fairfield CT	
River	Colorado		Housatonic		Housatonic		Housatonic	
Region and Power Supply Area	VI-32		I-02		I-02		I-02	
Licensed Project No.			02576		02576		02576	
General Operating Characteristics								
Installed Generating Capacity (MW)	14.0		31.0		37.2		30.5	
Pumping Energy - Pumped Storage (million kWh)	-		7.4		-		-	
Net Generation (million kWh)	107.7		10.8		113.7		90.7	
Plant Factor Based on Nameplate Rating (percent)	88		4		35		34	
Net Peak Demand on Plant - 60 Minutes (MW)	16.0		32.0		44.0		31.9	
Net Plant Capability								
Winter Capability (MW)	15.0		29.0		42.9		28.7	
Summer Capability (MW)	15.0		29.0		42.9		28.7	
Plant Hours Connected to Load	7,572		468		3,212		3,848	
Planned Ultimate Capacity (MW)	14.4		31.0		37.2		30.5	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	844		1,464		2,241		847	
Structures and Improvements	276		836		1,822		1,224	
Reservoirs, Dams, and Waterways	3,052		3,602		9,912		4,741	
Equipment	958		982		5,361		2,556	
Roads, Railroads, and Bridges	9		9		0		0	
Total	5,139		6,892		19,336		9,369	
Cost per kW of Installed Capacity(dollars)	367		222		520		307	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	41	0.38	227	21.06	92	0.81	95	1.05
Water for Power	31	.28	0	.01	0	.00	0	.00
Hydraulic Expenses	123	1.15	30	2.76	47	.42	35	.39
Electric Expenses	162	1.51	209	19.38	100	.88	222	2.45
Miscellaneous Hydraulic Power Expenses	42	.39	154	14.24	34	.30	99	1.10
Rents	4	.04	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	41	.38	48	4.49	44	.39	66	.73
Maintenance of Structures	34	.32	19	1.73	11	.10	13	.14
Maintenance of Reservoirs, Dams, and Waterways	29	.27	65	6.02	44	.39	211	2.32
Maintenance of Electric Plant	45	.41	53	4.92	95	.84	132	1.46
Maintenance of Miscellaneous Hydraulic Plant	43	.40	137	12.71	34	.30	68	.75
Total, Exclusive of Pumping	597	6.00	942	87.31	503	4.40	942	10.40
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	597	6.00	942	87.31	503	4.40	942	10.40
Hydraulic Data								
Drainage Area (square miles)	4,250		40		1,390		1,542	
Area of Pond at Normal Full-Pond Level (acres)	100		5,600		1,870		1,063	
Pondage from Maximum Draw-Down (acre-feet)	650		142,562		41,000		5,038	
Gross Head (feet)	171.00		230.00		97.00		69.00	
Flow at Full Station Load (cfs per kW)	.0886		.0631		.1420		.2100	
Average Number of Employees	16		30		NR		13	
Type of Plant Operation	Conventional		Conv/Pumped Storage		Conventional		Conventional	
Initial Year of Plant Operation	1909		1928		1955		1919	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Georgia Power Co			
Name of Plant	Bartletts Ferry	Goat Rock	Lloyd Shoals	North Highlands
Post Office	Salem, AL	Fortson, GA	Jackson, GA	Columbus, GA
Location of Plant (County and State)	Harris GA	Harris GA	Jasper GA	Muscogee GA
River	Chattahoochee	Chattahoochee	Ocmulgee	Chattahoochee
Region and Power Supply Area	III-23	III-23	III-23	III-23
Licensed Project No.	00485	02177	02336	02177
	General Operating Characteristics			
Installed Generating Capacity (MW)	173.0	26.0	14.0	30.0
Pumping Energy - Pumped Storage (million kWh)	-	-	-	-
Net Generation (million kWh)	371.6	143.5	51.7	118.8
Plant Factor Based on Nameplate Rating (percent)	25	63	42	45
Net Peak Demand on Plant - 60 Minutes (MW)	190.0	29.0	21.0	39.0
Net Plant Capability				
Winter Capability (MW)	186.0	26.0	21.0	36.0
Summer Capability (MW)	186.0	26.0	18.2	36.0
Plant Hours Connected to Load	8,760	8,749	8,760	8,760
Planned Ultimate Capacity (MW)	65.0	26.0	14.4	30.0
	Historical Plant Cost (thousand dollars)			
Land and Land Rights	1,133	19	353	29
Structures and Improvements	21,694	312	928	1,942
Reservoirs, Dams, and Waterways	38,796	5,510	1,875	1,304
Equipment	43,926	1,600	3,093	3,974
Roads, Railroads, and Bridges	296	35	49	38
Total	105,851	7,476	6,298	7,286
Cost per kW of Installed Capacity(dollars)	612	288	450	243

	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	0	0.00	0	0.00	11	0.21	0	0.00
Water for Power	165	.44	70	.49	0	.00	58	.48
Hydraulic Expenses	225	.61	26	.18	120	2.32	3	.03
Electric Expenses	191	.51	59	.41	139	2.68	30	.25
Miscellaneous Hydraulic Power Expenses	87	.23	29	.20	93	1.81	12	.10
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	5	.01	0	.00	0	.00	0	.00
Maintenance of Structures	122	.33	17	.12	15	.29	10	.08
Maintenance of Reservoirs, Dams, and Waterways	69	.19	18	.13	15	.29	3	.02
Maintenance of Electric Plant	173	.47	200	1.39	78	1.50	93	.78
Maintenance of Miscellaneous Hydraulic Plant	10	.03	3	.02	3	.05	1	.01
Total, Exclusive of Pumping	1,046	2.82	422	2.94	473	9.15	208	1.75
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	1,046	2.82	422	2.94	473	9.15	208	1.75

	Hydraulic Data			
Drainage Area (square miles)	4,260	4,535	1,300	4,670
Area of Pond at Normal Full-Pond Level (acres)	5,850	1,400	4,750	131
Pondage from Maximum Draw-Down (acre-feet)	57,000	5,000	43,500	510
Gross Head (feet)	115.00	69.00	102.00	35.00
Flow at Full Station Load (cfs per kW)	.1330	.2600	.1510	.3610
Average Number of Employees	57	1	5	1
Type of Plant Operation	Conventional	Conventional	Conventional	Conventional
Initial Year of Plant Operation	1926	1912	1911	1963

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Georgia Power Co							
Name of Plant	Oliver Dam		Sinclair Dam		Tallulah Falls		Tugalo	
Post Office	Columbus, GA		Milledgeville, GA		Tallulah Falls, GA		Tallulah Falls, GA	
Location of Plant (County and State)	Muscogee GA		Baldwin GA		Habersham GA		Habersham GA	
River	Chattahoochee		Oconee		Tallulah		Tugalo	
Region and Power Supply Area	III-23		III-23		III-23		III-23	
Licensed Project No.	02177		01951		02354		02354	
	General Operating Characteristics							
Installed Generating Capacity (MW)	60.0		45.0		72.0		45.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	198.8		91.1		124.5		92.8	
Plant Factor Based on Nameplate Rating (percent)	38		23		20		24	
Net Peak Demand on Plant - 60 Minutes (MW)	61.0		44.0		74.0		63.0	
Net Plant Capability								
Winter Capability (MW)	57.0		45.0		72.9		53.4	
Summer Capability (MW)	57.0		45.0		72.9		53.4	
Plant Hours Connected to Load	8,752		8,760		8,760		8,760	
Planned Ultimate Capacity (MW)	60.0		45.0		72.0		45.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	874		1,831		409		197	
Structures and Improvements	1,799		1,203		1,757		736	
Reservoirs, Dams, and Waterways	6,558		9,090		2,251		2,852	
Equipment	4,645		2,369		1,630		2,435	
Roads, Railroads, and Bridges	150		42		564		16	
Total	14,026		14,534		6,611		6,236	
Cost per kW of Installed Capacity(dollars)	234		323		92		139	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	0	0.00	0	0.00	19	0.15	20	0.21
Water for Power	95	.48	0	.00	0	.00	0	.00
Hydraulic Expenses	8	.04	137	1.50	123	.99	2	.03
Electric Expenses	39	.20	33	.36	409	3.29	37	.40
Miscellaneous Hydraulic Power Expenses	23	.12	71	.78	36	.29	25	.27
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	0	.00	0	.00	1	.01	1	.01
Maintenance of Structures	27	.14	10	.11	0	.00	53	.57
Maintenance of Reservoirs, Dams, and Waterways	6	.03	33	.36	9	.07	35	.38
Maintenance of Electric Plant	114	.58	70	.77	201	1.62	80	.86
Maintenance of Miscellaneous Hydraulic Plant	0	.00	4	.05	52	.42	19	.20
Total, Exclusive of Pumping	313	1.57	359	3.94	851	6.84	252	2.72
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	313	1.57	359	3.94	851	6.84	252	2.72
	Hydraulic Data							
Drainage Area (square miles)	4,670		2,910		186		464	
Area of Pond at Normal Full-Pond Level (acres)	2,150		15,330		63		597	
Pondage from Maximum Draw-Down (acre-feet)	6,000		111,000		330		3,490	
Gross Head (feet)	65.00		88.00		603.00		144.00	
Flow at Full Station Load (cfs per kW)	.2170		.1630		.0244		.0970	
Average Number of Employees	1		1		12		46	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1959		1953		1913		1923	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Georgia Power Co	Idaho Power Co		
Name of Plant	Wallace Dam	American Falls	Bliss	Brownlee
Post Office	Eatonton, GA	American Falls, ID	Bliss, ID	Cambridge, ID
Location of Plant (County and State)	Hancock-Putnam GA	Power ID	Gooding ID	Washington ID
River	Oconee	Snake	Snake	Snake
Region and Power Supply Area	III-23	VII-41	VII-41	VII-41
Licensed Project No.	02413	01971	01975	01971
	General Operating Characteristics			
Installed Generating Capacity (MW)	321.0	92.3	75.0	585.4
Pumping Energy - Pumped Storage (million kWh)	-	-	-	-
Net Generation (million kWh)	329.9	327.6	391.4	2,103.4
Plant Factor Based on Nameplate Rating (percent)	12	41	60	41
Net Peak Demand on Plant - 60 Minutes (MW)	326.0	89.0	77.0	675.0
Net Plant Capability				
Winter Capability (MW)	342.0	85.8	75.0	675.0
Summer Capability (MW)	342.0	96.0	75.0	625.0
Plant Hours Connected to Load	8,760	6,661	7,760	8,167
Planned Ultimate Capacity (MW)	321.3	92.3	75.0	585.4
	Historical Plant Cost (thousand dollars)			
Land and Land Rights	27,936	541	93	3,032
Structures and Improvements	29,984	15,329	443	22,290
Reservoirs, Dams, and Waterways	81,760	758	7,182	61,201
Equipment	73,336	30,111	4,500	44,891
Roads, Railroads, and Bridges	554	3	30	0
Total	213,592	46,743	12,248	131,413
Cost per kW of Installed Capacity(dollars)	665	506	163	224

	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	14	0.04	438	1.34	41	0.11	92	0.04
Water for Power	0	.00	2,531	7.72	103	.26	0	.00
Hydraulic Expenses	573	1.74	24	.07	8	.02	22	.01
Electric Expenses	302	.91	193	.59	115	.30	322	.15
Miscellaneous Hydraulic Power Expenses	312	.95	44	.14	53	.14	96	.06
Rents	0	.00	0	.00	2	.00	138	.07
Maintenance Expenses								
Maintenance Supervision and Engineering	1	.00	21	.07	37	.10	41	.02
Maintenance of Structures	88	.27	20	.06	19	.05	59	.03
Maintenance of Reservoirs, Dams, and Waterways	60	.18	1	.00	3	.01	15	.01
Maintenance of Electric Plant	315	.96	100	.31	174	.45	87	.04
Maintenance of Miscellaneous Hydraulic Plant	142	.43	24	.07	16	.04	158	.08
Total, Exclusive of Pumping	1,806	5.48	3,396	10.37	572	1.46	1,032	.49
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	1,806	5.48	[1] 3,396	10.37	572	1.46	1,032	.49

	Hydraulic Data			
Drainage Area (square miles)	1,830	13,580	34,000	72,800
Area of Pond at Normal Full-Pond Level (acres)	19,050	58,078	254	15,000
Pondage from Maximum Draw-Down (acre-feet)	27,887	1,507,674	1,200	984,482
Gross Head (feet)	97.00	105.00	70.00	277.00
Flow at Full Station Load (cfs per kW)	.0640	-	.1800	.0470
Average Number of Employees	48	8	5	11
Type of Plant Operation	Conv/Pumped Storage	Conventional	Conventional	Conventional
Initial Year of Plant Operation	1979	1978	1949	1958

[1] On October 16, 1987 the USBR reduced the water releases from American Falls to the extent that Idaho Power Company could not generate.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Idaho Power Co							
Name of Plant	C J Strike		Cascade		Lower Malad		Lower Salmon	
Post Office	Grandview, ID		Cascade, ID		Hagerman, ID		Hagerman, ID	
Location of Plant (County and State)	Owyhee ID		Cascade ID		Gooding ID		Gooding ID	
River	Snake		Payette		Malad		Snake	
Region and Power Supply Area	VII-41		VII-41		VII-41		VII-41	
Licensed Project No.	02055		02848		02726		02061	
General Operating Characteristics								
Installed Generating Capacity (MW)	82.8		12.4		20.7		60.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	465.2		30.0		185.6		263.0	
Plant Factor Based on Nameplate Rating (percent)	64		28		102		50	
Net Peak Demand on Plant - 60 Minutes (MW)	69.0		12.4		24.0		67.0	
Net Plant Capability								
Winter Capability (MW)	88.0		9.9		11.0		66.0	
Summer Capability (MW)	88.0		4.7		13.3		66.0	
Plant Hours Connected to Load	8,760		8,740		8,654		8,759	
Planned Ultimate Capacity (MW)	82.8		75.0		20.7		60.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	1,759		29		152		132	
Structures and Improvements	2,005		7,370		761		580	
Reservoirs, Dams, and Waterways	9,707		3,148		3,277		5,460	
Equipment	4,485		12,233		1,618		4,912	
Roads, Railroads, and Bridges	187		0		252		76	
Total	18,144		22,787		6,060		11,159	
Cost per kW of Installed Capacity(dollars)	219		1,838		293		186	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	40	0.09	18	0.58	43	0.23	59	0.22
Water for Power	0	.00	50	1.67	265	1.43	0	.00
Hydraulic Expenses	13	.03	6	.19	0	.00	3	.01
Electric Expenses	148	.32	21	.69	49	.26	283	1.07
Miscellaneous Hydraulic Power Expenses	48	.10	33	1.09	12	.07	85	.32
Rents	40	.09	0	.01	0	.00	1	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	26	.06	9	.31	-84	.00	39	.15
Maintenance of Structures	24	.05	11	.36	9	.05	30	.12
Maintenance of Reservoirs, Dams, and Waterways	12	.03	16	.54	10	.06	5	.02
Maintenance of Electric Plant	54	.12	31	1.03	-109	.00	247	.94
Maintenance of Miscellaneous Hydraulic Plant	25	.05	11	.35	3	.02	28	.11
Total, Exclusive of Pumping	430	.92	205	6.83	199	1.07	780	2.97
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	430	.92	205	6.83	199	1.07	780	2.97
Hydraulic Data								
Drainage Area (square miles)	41,900		620		2,990		32,280	
Area of Pond at Normal Full-Pond Level (acres)	7,500		2,700		-		845	
Pondage from Maximum Draw-Down (acre-feet)	35,000		653,200		-		3,600	
Gross Head (feet)	88.00		970.00		162.00		59.00	
Flow at Full Station Load (cfs per kW)	.1590		-		.0860		.2300	
Average Number of Employees	6		2		1		15	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1952		1983		1948		1949	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Idaho Power Co.							
Name of Plant	Shoshone Falls		Swan Falls		Twin Falls		Upper Salmon Falls	
Post Office	Jerome, ID		Ada, ID		Kimberly, ID		Hagerman, ID	
Location of Plant (County and State)	Twin Falls ID		Kuna ID		Twin Falls ID		Twin Falls ID	
River	Snake		Snake		Snake		Snake	
Region and Power Supply Area	VII-41		VII-41		VII-41		VII-41	
Licensed Project No.	02778		00503		00018		02777	
General Operating Characteristics								
Installed Generating Capacity (MW)	12.5		10.3		8.4		34.5	
Pumping Energy - Pumped Storage (million kWh)	–		–		–		–	
Net Generation (million kWh)	69.6		86.3		66.0		274.8	
Plant Factor Based on Nameplate Rating (percent)	64		96		90		91	
Net Peak Demand on Plant - 60 Minutes (MW)	12.5		12.0		10.0		36.0	
Net Plant Capability								
Winter Capability (MW)	12.5		7.8		9.8		37.2	
Summer Capability (MW)	12.5		10.5		9.8		37.2	
Plant Hours Connected to Load	5,947		8,760		8,695		8,760	
Planned Ultimate Capacity (MW)	12.4		10.3		13.5		34.5	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	268		15		19		52	
Structures and Improvements	995		366		498		1,160	
Reservoirs, Dams, and Waterways	489		9,671		295		3,199	
Equipment	1,591		680		323		1,967	
Roads, Railroads, and Bridges	30		754		911		86	
Total	3,354		11,487		2,048		6,463	
Cost per kW of Installed Capacity(dollars)	268		1,115		243		187	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	16	0.23	57	0.64	12	0.19	51	0.18
Water for Power	0	.00	0	.00	0	.00	0	.00
Hydraulic Expenses	0	.00	7	.08	22	.34	12	.04
Electric Expenses	58	.83	235	2.66	43	.66	262	.95
Miscellaneous Hydraulic Power Expenses	41	.59	66	.74	16	.24	43	.16
Rents	0	.00	5	.06	-5	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	11	.16	15	.17	6	.09	20	.07
Maintenance of Structures	24	.34	27	.31	15	.23	45	.16
Maintenance of Reservoirs, Dams, and Waterways	10	.14	13	.15	5	.08	27	.10
Maintenance of Electric Plant	23	.33	47	.54	15	.23	66	.24
Maintenance of Miscellaneous Hydraulic Plant	14	.20	12	.14	9	.14	8	.03
Total, Exclusive of Pumping	197	2.83	484	5.49	139	2.11	534	1.94
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	197	2.83	484	5.49	139	2.11	534	1.94
Hydraulic Data								
Drainage Area (square miles)	19,500		41,900		28,000		32,200	
Area of Pond at Normal Full-Pond Level (acres)	120		1,525		94		600	
Pondage from Maximum Draw-Down (acre-feet)	750		2,275		750		1,200	
Gross Head (feet)	207.00		24.00		147.00		46.00	
Flow at Full Station Load (cfs per kW)	.0730		.0700		.0870		.3450	
Average Number of Employees	3		10		3		8	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1921		1945		1935		1937	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Utah Power & Light Co		Washington Water Power Co	
Name of Plant	Grace	Oneida	Cabinet Gorge	Post Falls
Post Office	Grace, ID	Preston, ID	Cabinet Gorge, ID	Post Falls, ID
Location of Plant (County and State)	Caribou ID	Franklin ID	Bonner ID	Kootenai ID
River	Bear	Bear	Clark Fork	Spokane
Region and Power Supply Area	VII-41	VII-41	VII-42	VII-42
Licensed Project No.	02401	00472	02058	02545
General Operating Characteristics				
Installed Generating Capacity (MW)	38.2	39.0	200.0	14.8
Pumping Energy - Pumped Storage (million kWh)	-	-	-	-
Net Generation (million kWh)	142.6	54.6	871.3	65.4
Plant Factor Based on Nameplate Rating (percent)	43	16	50	50
Net Peak Demand on Plant - 60 Minutes (MW)	33.0	29.0	230.0	18.0
Net Plant Capability				
Winter Capability (MW)	33.0	28.0	230.0	18.0
Summer Capability (MW)	33.0	28.0	230.0	18.0
Plant Hours Connected to Load	829	8,424	8,760	8,760
Planned Ultimate Capacity (MW)	33.0	30.0	200.0	14.8
Historical Plant Cost (thousand dollars)				
Land and Land Rights	49	37	7,685	1,499
Structures and Improvements	843	969	8,132	367
Reservoirs, Dams, and Waterways	6,983	1,816	17,269	1,347
Equipment	2,679	2,480	13,746	2,559
Roads, Railroads, and Bridges	43	359	821	0
Total	10,597	5,661	47,653	5,772
Cost per kW of Installed Capacity(dollars)	277	145	238	390

Power Production Expenses	Grace $1,000	Grace Mills/kWh	Oneida $1,000	Oneida Mills/kWh	Cabinet Gorge $1,000	Cabinet Gorge Mills/kWh	Post Falls $1,000	Post Falls Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	44	0.31	42	0.77	58	0.07	52	0.80
Water for Power	0	.00	0	.00	0	.00	2	.03
Hydraulic Expenses	20	.14	1	.02	19	.02	5	.07
Electric Expenses	67	.47	50	.92	384	.44	43	.66
Miscellaneous Hydraulic Power Expenses	131	.92	34	.63	83	.10	24	.37
Rents	21	.14	61	1.13	14	.02	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	0	.00	0	.00	15	.02	8	.12
Maintenance of Structures	51	.36	[1] -200	.00	47	.05	4	.05
Maintenance of Reservoirs, Dams, and Waterways	80	.56	37	.69	21	.02	273	4.17
Maintenance of Electric Plant	30	.21	-193	.00	271	.31	28	.43
Maintenance of Miscellaneous Hydraulic Plant	48	.33	-470	.00	5	.01	2	.03
Total, Exclusive of Pumping	492	3.40	-637	11.70	917	1.05	441	6.74
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	492	3.40	-637	11.70	917	1.05	441	6.74

Hydraulic Data	Grace	Oneida	Cabinet Gorge	Post Falls
Drainage Area (square miles)	3,840	4,130	21,840	3,840
Area of Pond at Normal Full-Pond Level (acres)	33	480	3,203	48,000
Pondage from Maximum Draw-Down (acre-feet)	250	11,500	42,780	225,000
Gross Head (feet)	524.00	145.00	97.00	56.00
Flow at Full Station Load (cfs per kW)	.0330	.1050	.1530	.2900
Average Number of Employees	13	5	13	2
Type of Plant Operation	Conventional	Conventional	Conventional	Conventional
Initial Year of Plant Operation	1908	1915	1952	1906

[1] Includes capitalization of prior years maintenance expenses.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Public Service Co of Indiana	Union Electric Co	Louisville Gas & Electric Co	Tennessee Valley Authority
Name of Plant	Markland	Keokuk	Ohio Falls	Kentucky
Post Office	Markland, IN	Keokuk, IA	Louisville, KY	
Location of Plant (County and State)	Switzerland IN	Lee IA	Jefferson KY	Marshall KY
River	Ohio	Mississippi	Ohio	Tennessee River
Region and Power Supply Area	II-12	IV-15	II-12	III-22
Licensed Project No.	02211		00289	
General Operating Characteristics				
Installed Generating Capacity (MW)	81.0	124.8	80.3	175.0
Pumping Energy - Pumped Storage (million kWh)	-	-	-	-
Net Generation (million kWh)	416.0	947.5	399.2	1,025.5
Plant Factor Based on Nameplate Rating (percent)	59	87	57	67
Net Peak Demand on Plant - 60 Minutes (MW)	74.0	221.0	78.0	191.0
Net Plant Capability				
Winter Capability (MW)	55.0	119.0	64.0	175.0
Summer Capability (MW)	55.0	122.0	35.2	175.0
Plant Hours Connected to Load	8,319	8,759	7,270	8,760
Planned Ultimate Capacity (MW)	81.0	124.8	80.3	-
Historical Plant Cost (thousand dollars)				
Land and Land Rights	0	7,937	0	0
Structures and Improvements	2,419	2,668	4,508	7,964
Reservoirs, Dams, and Waterways	11,247	7,623	157	0
Equipment	6,461	9,007	3,162	13,212
Roads, Railroads, and Bridges	0	29	175	0
Total	20,126	27,264	[1] 8,002	21,176
Cost per kW of Installed Capacity(dollars)	248	218	100	121

Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	0	0.00	180	0.19	66	0.16	98	0.10
Water for Power	0	.00	35	.04	0	.00	0	.00
Hydraulic Expenses	50	.12	132	.14	20	.05	0	.00
Electric Expenses	15	.04	1,078	1.14	425	1.06	269	.26
Miscellaneous Hydraulic Power Expenses	110	.26	440	.46	95	.24	202	.20
Rents	65	.16	0	.00	781	1.96	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	9	.02	172	.18	44	.11	47	.05
Maintenance of Structures	14	.03	151	.16	38	.10	48	.05
Maintenance of Reservoirs, Dams, and Waterways	70	.17	198	.21	14	.04	20	.02
Maintenance of Electric Plant	62	.15	457	.48	396	.99	81	.08
Maintenance of Miscellaneous Hydraulic Plant	3	.01	122	.13	31	.08	81	.08
Total, Exclusive of Pumping	398	.00	2,965	3.13	1,909	4.80	845	.82
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	398	.00	2,965	3.13	1,909	4.80	845	.82

Hydraulic Data				
Drainage Area (square miles)	73	119,000	91,200	-
Area of Pond at Normal Full-Pond Level (acres)	16,600	32,000	18,840	-
Pondage from Maximum Draw-Down (acre-feet)	16,600	123,000	-	-
Gross Head (feet)	32.00	37.00	37.00	-
Flow at Full Station Load (cfs per kW)	.5100	.4390	.4100	-
Average Number of Employees	[2] NR	82	24	19
Type of Plant Operation	Conventional	Conventional	Conventional	Conventional
Initial Year of Plant Operation	1967	1913	1927	1944

[1] Includes $62,184 of non-project property.

[2] Operated remotely.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Central Maine Power Co							
Name of Plant	Brunswick		Gulf Island		Harris		Skelton	
Post Office			Lewiston, ME		Kennebec, ME		Hollins Center, ME	
Location of Plant (County and State)	Brunswick ME		Androscoggin ME		Somerset ME		York ME	
River	Androscoggin		Androscoggin		Kennebec		Saco	
Region and Power Supply Area	I-01		I-01		I-01		I-01	
Licensed Project No.			02177		02142		02517	
General Operating Characteristics								
Installed Generating Capacity (MW)	19.6		19.2		75.0		16.8	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	79.6		110.9		182.1		93.1	
Plant Factor Based on Nameplate Rating (percent)	46		66		28		63	
Net Peak Demand on Plant - 60 Minutes (MW)	19.6		24.0		88.5		20.0	
Net Plant Capability								
Winter Capability (MW)	20.2		23.6		86.0		20.0	
Summer Capability (MW)	20.2		23.6		86.0		20.0	
Plant Hours Connected to Load	8,488		8,764		8,781		8,622	
Planned Ultimate Capacity (MW)	-		19.2		75.0		16.8	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	264		1,601		738		1,266	
Structures and Improvements	12,366		358		2,742		656	
Reservoirs, Dams, and Waterways	15,595		2,250		6,964		4,743	
Equipment	12,951		2,233		4,819		1,987	
Roads, Railroads, and Bridges	104		45		371		0	
Total	41,279		6,487		15,634		8,651	
Cost per kW of Installed Capacity(dollars)	2,106		338		208		515	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1	0.01	0	0.00	9	0.05	9	0.09
Water for Power	0	.00	0	.00	0	.00	0	.00
Hydraulic Expenses	17	.21	3	.03	4	.02	4	.04
Electric Expenses	42	.52	198	1.79	154	.85	42	.45
Miscellaneous Hydraulic Power Expenses	10	.13	25	.23	113	.62	20	.22
Rents	0	.00	0	.00	0	.00	1	.01
Maintenance Expenses								
Maintenance Supervision and Engineering	3	.03	2	.02	9	.05	8	.09
Maintenance of Structures	9	.11	73	.66	25	.13	15	.16
Maintenance of Reservoirs, Dams, and Waterways	47	.59	258	2.32	18	.10	43	.46
Maintenance of Electric Plant	123	1.54	121	1.09	129	.71	364	3.91
Maintenance of Miscellaneous Hydraulic Plant	2	.02	9	.08	22	.12	0	.00
Total, Exclusive of Pumping	253	3.17	689	6.22	483	2.65	506	5.44
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	253	3.17	689	6.22	483	2.65	506	5.44
Hydraulic Data								
Drainage Area (square miles)	3,450		2,860		1,350		1,640	
Area of Pond at Normal Full-Pond Level (acres)	12		1,263		3,650		659	
Pondage from Maximum Draw-Down (acre-feet)	-		5,050		16,070		3,628	
Gross Head (feet)	39.00		55.00		149.00		74.00	
Flow at Full Station Load (cfs per kW)	-		.2500		.0683		.1822	
Average Number of Employees	1		8		7		1	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1982		1926		1954		1948	

NR=Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Central Maine Power Co						Philadelphia Electric Co	
Name of Plant	Weston		Williams		Wyman		Conowingo	
Post Office	Skowhegan, ME		Embden, ME		Moscow, ME		Conowingo, MD	
Location of Plant (County and State)	Somerset ME		Somerset ME		Somerset ME		Harford MD	
River	Kennebec		Kennebec		Kennebec		Susquehanna	
Region and Power Supply Area	I-01		I-01		I-01		I-05	
Licensed Project No.	02325		02335		02329		00405	
	General Operating Characteristics							
Installed Generating Capacity (MW)	12.0		13.0		72.0		474.5	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	45.1		91.9		318.7		1,590.0	
Plant Factor Based on Nameplate Rating (percent)	43		81		51		38	
Net Peak Demand on Plant - 60 Minutes (MW)	13.6		15.1		82.0		508.0	
Net Plant Capability								
Winter Capability (MW)	13.2		14.7		82.0		410.0	
Summer Capability (MW)	13.2		14.7		82.0		512.0	
Plant Hours Connected to Load	5,874		8,751		8,784		8,841	
Planned Ultimate Capacity (MW)	13.0		13.0		72.0		474.8	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	415		898		1,397		0	
Structures and Improvements	491		415		782		0	
Reservoirs, Dams, and Waterways	1,260		1,188		10,424		0	
Equipment	782		908		1,669		0	
Roads, Railroads, and Bridges	0		20		0		0	
Total	2,948		3,430		14,271		0	
Cost per kW of Installed Capacity(dollars)	246		264		198		0	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	10	0.21	6	0.06	9	0.03	461	0.29
Water for Power	0	.00	0	.00	0	.00	723	.45
Hydraulic Expenses	35	.78	23	.26	9	.03	614	.39
Electric Expenses	142	3.15	21	.23	170	.53	773	.49
Miscellaneous Hydraulic Power Expenses	22	.48	17	.18	92	.29	1,667	1.05
Rents	0	.00	0	.00	0	.00	10,351	6.51
Maintenance Expenses								
Maintenance Supervision and Engineering	8	.18	7	.08	14	.04	145	.09
Maintenance of Structures	67	1.50	15	.16	26	.08	488	.31
Maintenance of Reservoirs, Dams, and Waterways	95	2.12	17	.19	75	.24	1,907	1.20
Maintenance of Electric Plant	14	.32	30	.33	283	.89	1,777	1.12
Maintenance of Miscellaneous Hydraulic Plant	10	.22	2	.02	10	.03	300	.19
Total, Exclusive of Pumping	403	8.95	138	1.51	688	2.15	19,208	12.08
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	403	8.95	138	1.51	688	2.15	19,208	12.08
	Hydraulic Data							
Drainage Area (square miles)	3,950		2,720		2,600		27,089	
Area of Pond at Normal Full-Pond Level (acres)	930		333		2,900		8,563	
Pondage from Maximum Draw-Down (acre-feet)	2,550		2,411		66,700		70,737	
Gross Head (feet)	32.00		42.00		138.00		87.00	
Flow at Full Station Load (cfs per kW)	.4700		.3600		.1100		.1630	
Average Number of Employees	4		1		9		73	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1921		1939		1930		1928	

NR = Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Holyoke Water Power Co	New England Power Co	Western Massachusetts Elec Co.	
Name of Plant	Hadley Falls	Bear Swamp	Cabot	Northfield Mountain
Post Office	Holyoke, MA	Row, MA	Montague, MA	Erving, MA
Location of Plant (County and State)	Hampden MA	Berkshire MA	Franklin MA	Franklin MA
River	Connecticut	Deerfield	Connecticut	Connecticut
Region and Power Supply Area	I-02	I-02	I-02	I-02
Licensed Project No.	02004	02669	01889	02485
General Operating Characteristics				
Installed Generating Capacity (MW)	30.8	600.0	51.0	846.0
Pumping Energy - Pumped Storage (million kWh)	-	645.9	-	1,314.6
Net Generation (million kWh)	174.3	474.4	280.6	961.8
Plant Factor Based on Nameplate Rating (percent)	55	9	63	13
Net Peak Demand on Plant - 60 Minutes (MW)	31.0	593.0	53.0	1,000.0
Net Plant Capability				
Winter Capability (MW)	31.2	562.5	53.0	1,000.0
Summer Capability (MW)	31.2	564.0	53.0	1,000.0
Plant Hours Connected to Load	8,756	2,650	8,592	3,224
Planned Ultimate Capacity (MW)	15.0	600.0	51.0	846.0
Historical Plant Cost (thousand dollars)				
Land and Land Rights	1	3,531	1,624	1,291
Structures and Improvements	8,329	16,607	1,398	21,036
Reservoirs, Dams, and Waterways	6,901	47,594	28,262	55,245
Equipment	14,249	35,566	6,010	47,229
Roads, Railroads, and Bridges	104	4,078	1	4,694
Total	29,585	107,376	37,295	129,495
Cost per kW of Installed Capacity(dollars)	961	179	731	153

Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	271	1.55	110	0.23	192	0.68	1,529	1.59
Water for Power	34	.19	0	.00	25	.09	0	.00
Hydraulic Expenses	75	.43	40	.08	270	.96	985	1.02
Electric Expenses	52	.30	160	.34	117	.42	421	.44
Miscellaneous Hydraulic Power Expenses	170	.98	77	.16	210	.75	672	.70
Rents	0	.00	9	.02	0	.00	2,053	2.13
Maintenance Expenses								
Maintenance Supervision and Engineering	32	.19	83	.17	194	.69	456	.47
Maintenance of Structures	89	.51	28	.06	570	2.03	768	.80
Maintenance of Reservoirs, Dams, and Waterways	17	.10	29	.06	140	.50	197	.20
Maintenance of Electric Plant	217	1.24	550	1.16	247	.88	2,517	2.62
Maintenance of Miscellaneous Hydraulic Plant	74	.42	25	.05	96	.34	298	.31
Total, Exclusive of Pumping	1,030	5.90	1,110	2.34	2,059	7.34	9,895	10.29
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	1,030	5.90	1,110	2.34	2,059	7.34	9,895	10.29

Hydraulic Data	Hadley Falls	Bear Swamp	Cabot	Northfield Mountain
Drainage Area (square miles)	8,300	-	7,163	1
Area of Pond at Normal Full-Pond Level (acres)	2,290	-	1,920	270
Pondage from Maximum Draw-Down (acre-feet)	7,025	-	8,650	12,800
Gross Head (feet)	52.00	-	62.00	825.00
Flow at Full Station Load (cfs per kW)	.2590	-	.2560	.0150
Average Number of Employees	NR	NR	32	45
Type of Plant Operation	Conventional	Pumped Storage	Conventional	Pumped Storage
Initial Year of Plant Operation	1952	1974	1916	1973

NR = Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Consumers Power Co		Edison Sault Electric Co	Upper Peninsula Power Co
Name of Plant	Hardy	Ludington	Edison Sault	Victoria [1]
Post Office Location of Plant (County and State) River Region and Power Supply Area Licensed Project No.	Newaygo, MI Newaygo MI Muskegon II-11 02452	Ludington, MI Mason MI Lake Michigan II-11 02680	 Sault Ste. Marie MI St. Marys II-11 	 Rockland MI Ontanagon II-11
General Operating Characteristics				
Installed Generating Capacity (MW)	30.0	1,978.8	39.5	12.0
Pumping Energy - Pumped Storage (million kWh)	-	3,192.1	-	-
Net Generation (million kWh)	77.9	2,266.7	168.4	55.0
Plant Factor Based on Nameplate Rating (percent)	30	13	49	52
Net Peak Demand on Plant - 60 Minutes (MW)	30.0	1,722.0	33.1	13.2
Net Plant Capability				
Winter Capability (MW)	32.4	1,872.0	30.1	12.4
Summer Capability (MW)	32.4	1,872.0	28.8	12.4
Plant Hours Connected to Load	5,683	3,870	8,760	7,681
Planned Ultimate Capacity (MW)	30.0	1,979.0	-	-
Historical Plant Cost (thousand dollars)				
Land and Land Rights	333	5,103	68	529
Structures and Improvements	214	34,718	579	234
Reservoirs, Dams, and Waterways	3,630	206,022	1,118	4,996
Equipment	1,142	59,626	1,332	747
Roads, Railroads, and Bridges	0	3,398	0	0
Total	5,319	308,867	3,097	6,506
Cost per kW of Installed Capacity(dollars)	177	156	78	542

Power Production Expenses	Hardy $1,000	Hardy Mills/kWh	Ludington $1,000	Ludington Mills/kWh	Edison Sault $1,000	Edison Sault Mills/kWh	Victoria $1,000	Victoria Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	30	0.38	220	0.10	100	0.59	392	7.13
Water for Power	2	.03	0	.00	280	1.66	0	.00
Hydraulic Expenses	6	.08	84	.04	33	.20	89	1.61
Electric Expenses	52	.67	329	.15	407	2.42	20	.37
Miscellaneous Hydraulic Power Expenses	29	.37	657	.29	101	.60	27	.50
Rents	0	.00	5	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	71	.91	95	.04	22	.13	34	.62
Maintenance of Structures	16	.21	126	.06	79	.47	5	.09
Maintenance of Reservoirs, Dams, and Waterways	274	3.52	217	.10	227	1.35	277	5.04
Maintenance of Electric Plant	51	.65	10,656	4.70	179	1.06	74	1.34
Maintenance of Miscellaneous Hydraulic Plant	4	.05	113	.05	17	.10	17	.31
Total, Exclusive of Pumping	536	6.90	12,502	5.52	1,445	8.60	934	17.00
Cost of Pumping Energy	0	.00	36,441	.00	0	.00	0	.00
Total Production Expenses	536	6.90	48,943	21.60	1,445	8.60	934	17.00

Hydraulic Data	Hardy	Ludington	Edison Sault	Victoria
Drainage Area (square miles)	1,851	-	-	652
Area of Pond at Normal Full-Pond Level (acres)	3,971	842	-	350
Pondage from Maximum Draw-Down (acre-feet)	39,700	54	-	1
Gross Head (feet)	100.00	361.00	-	215.00
Flow at Full Station Load (cfs per kW)	.1400	.2091	-	-
Average Number of Employees	NR	35	NR	6
Type of Plant Operation	Conventional	Pumped Storage	Conventional	Conventional
Initial Year of Plant Operation	1931	1973	1901	1931

[1] Includes original cost of Bond Falls storage reservoir.

NR=Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Wisconsin Electric Power Co				Minnesota Power & Light Co			
Name of Plant	Big Quinnesec 61		Peavy Falls		Blanchard		Fond Du Lac	
Post Office	Iron Mountain, MI		Randville, MI		Royalton, MN		Duluth, MN	
Location of Plant (County and State)	Dickinson MI		Iron MI		Morrison MN		Carlton MN	
River	Menominee		Michigamme		Mississippi		St. Louis	
Region and Power Supply Area	IV-13		IV-13		IV-16		IV-16	
Licensed Project No.	01980		01759		00346		02360	
General Operating Characteristics								
Installed Generating Capacity (MW)	19.5		12.0		12.0		12.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	91.5		48.1		77.6		54.5	
Plant Factor Based on Nameplate Rating (percent)	54		46		74		52	
Net Peak Demand on Plant - 60 Minutes (MW)	19.7		12.5		11.7		11.9	
Net Plant Capability								
Winter Capability (MW)	8.1		15.0		11.8		11.8	
Summer Capability (MW)	20.3		16.0		11.8		11.8	
Plant Hours Connected to Load	8,752		6,701		8,760		8,760	
Planned Ultimate Capacity (MW)	19.5		12.0		12.0		12.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	105		72		210		875	
Structures and Improvements	563		167		499		443	
Reservoirs, Dams, and Waterways	1,459		937		1,788		1,784	
Equipment	1,075		531		2,021		969	
Roads, Railroads, and Bridges	64		25		0		17	
Total	3,267		1,731		4,519		4,088	
Cost per kW of Installed Capacity(dollars)	168		144		377		341	
Power Production Expenses								
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	35	0.39	24	0.49	12	0.15	14	0.25
Water for Power	0	.00	0	.00	0	.00	0	.00
Hydraulic Expenses	5	.06	7	.14	11	.14	23	.42
Electric Expenses	35	.39	50	1.04	1	.02	6	.10
Miscellaneous Hydraulic Power Expenses	38	.41	28	.59	10	.13	14	.26
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	34	.37	23	.48	22	.28	9	.16
Maintenance of Structures	11	.12	15	.30	15	.19	10	.18
Maintenance of Reservoirs, Dams, and Waterways	3	.03	57	1.19	17	.22	29	.53
Maintenance of Electric Plant	32	.35	172	3.58	40	.52	81	1.50
Maintenance of Miscellaneous Hydraulic Plant	25	.27	21	.43	7	.09	0	.00
Total, Exclusive of Pumping	218	2.38	396	8.24	135	1.74	186	3.41
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	218	2.38	396	8.24	135	1.74	186	3.41
Hydraulic Data								
Drainage Area (square miles)	2,475		715		11,425		3,600	
Area of Pond at Normal Full-Pond Level (acres)	257		3,160		1,150		166	
Pondage from Maximum Draw-Down (acre-feet)	642		34,000		2,290		1,280	
Gross Head (feet)	61.00		95.00		45.00		78.00	
Flow at Full Station Load (cfs per kW)	.1530		.1460		.3300		.2000	
Average Number of Employees	1		1		NR		NR	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1914		1943		1925		1924	

NR=Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Minnesota Power & Light Co		Northern States Power Co		Union Electric Co			
Name of Plant	Thomson		Hennepin Island		Osage		Taum Sauk	
Post Office	Thomson, MN		Minneapolis, Mn		Lakeside, MO		Annapolis, MO	
Location of Plant (County and State)	Carlton MN		Hennepin MN		Miller MO		Reynolds MO	
River	St. Louis		Mississippi		Osage		E.F. Black	
Region and Power Supply Area	IV-16		IV-16		IV-15		IV-15	
Licensed Project No.	02360		02066		00459		02277	
General Operating Characteristics								
Installed Generating Capacity (MW)	70.9		20.4		172.0		408.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		37.0	
Net Generation (million kWh)	332.2		83.3		601.1		9.9	
Plant Factor Based on Nameplate Rating (percent)	53		47		40		-	
Net Peak Demand on Plant - 60 Minutes (MW)	68.4		NR		232.0		201.0	
Net Plant Capability								
Winter Capability (MW)	70.0		12.0		212.0		300.0	
Summer Capability (MW)	70.0		12.0		205.0		225.0	
Plant Hours Connected to Load	8,760		8,760		8,679		1,060	
Planned Ultimate Capacity (MW)	70.9		12.4		172.0		408.0	
Historical Plant Cost[1] (thousand dollars)								
Land and Land Rights	330		1,549		9,947		187	
Structures and Improvements	1,577		243		2,796		5,021	
Reservoirs, Dams, and Waterways	6,763		1,755		23,820		24,197	
Equipment	5,596		1,306		8,539		17,360	
Roads, Railroads, and Bridges	13		0		77		46	
Total	14,278		4,852		45,179		46,811	
Cost per kW of Installed Capacity(dollars)	201		238		263		115	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	218	0.66	578	6.93	107	0.18	54	5.41
Water for Power	0	.00	78	.93	0	.00	0	.00
Hydraulic Expenses	117	.35	73	.88	128	.21	47	4.80
Electric Expenses	292	.88	46	.56	1,015	1.69	28	2.87
Miscellaneous Hydraulic Power Expenses	105	.32	62	.75	318	.53	62	6.27
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	102	.31	29	.35	94	.16	70	7.05
Maintenance of Structures	19	.06	14	.17	220	.37	23	2.32
Maintenance of Reservoirs, Dams, and Waterways	73	.22	60	.72	147	.24	267	27.04
Maintenance of Electric Plant	103	.31	95	1.14	155	.26	71	7.22
Maintenance of Miscellaneous Hydraulic Plant	16	.05	12	.15	178	.30	113	11.45
Total, Exclusive of Pumping	1,046	3.15	1,048	12.58	2,361	3.93	736	74.42
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	1,046	3.15	1,048	12.58	2,361	3.93	736	74.42
Hydraulic Data								
Drainage Area (square miles)	3,560		19,680		14,000		-0.	
Area of Pond at Normal Full-Pond Level (acres)	365		354		57,404		55	
Pondage from Maximum Draw-Down (acre-feet)	3,040		2		1,246,000		9	
Gross Head (feet)	374.00		49.00		92.00		863.00	
Flow at Full Station Load (cfs per kW)	.0400		-		.1630		-	
Average Number of Employees	30		8		61		10	
Type of Plant Operation	Conventional		Conventional		Conventional		Pumped Storage	
Initial Year of Plant Operation	1907		1955		1931		1963	

NR = Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Montana Power Co							
Name of Plant	Black Eagle		Cochrane		Hauser Lake		Holter	
Post Office	Great Falls, MT		Great Falls, MT		Helena, MT		Wolf Creek, MT	
Location of Plant (County and State)	Cascade MT		Cascade MT		Lewis & Clark MT		Lewis & Clark MT	
River	Missouri		Missouri		Missouri		Missouri	
Region and Power Supply Area	VII-30		VII-30		VII-30		VII-30	
Licensed Project No.	02188		02188		02188		02188	
	General Operating Characteristics							
Installed Generating Capacity (MW)	21.0		48.0		17.0		38.4	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	121.7		237.6		113.2		234.2	
Plant Factor Based on Nameplate Rating (percent)	66		56		76		70	
Net Peak Demand on Plant - 60 Minutes (MW)	20.0		55.0		17.0		49.0	
Net Plant Capability								
Winter Capability (MW)	18.0		50.0		16.5		49.0	
Summer Capability (MW)	18.0		50.0		16.5		49.0	
Plant Hours Connected to Load	8,753		8,759		8,760		8,758	
Planned Ultimate Capacity (MW)	19.0		48.0		17.0		38.4	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	369		59		241		223	
Structures and Improvements	378		1,014		394		488	
Reservoirs, Dams, and Waterways	1,016		5,612		4,634		3,913	
Equipment	1,040		4,152		677		1,338	
Roads, Railroads, and Bridges	28		82		39		6	
Total	2,851		10,919		5,986		5,968	
Cost per kW of Installed Capacity(dollars)	136		227		352		155	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	58	0.48	42	0.18	0	0.00	0	0.00
Water for Power	31	.25	50	.21	32	.28	63	.27
Hydraulic Expenses	15	.13	10	.04	4	.04	21	.09
Electric Expenses	220	1.81	65	.27	44	.39	43	.18
Miscellaneous Hydraulic Power Expenses	21	.17	21	.09	40	.36	35	.15
Rents	0	.00	0	.00	9	.08	6	.03
Maintenance Expenses								
Maintenance Supervision and Engineering	18	.15	15	.06	0	.00	0	.00
Maintenance of Structures	53	.44	1	.00	23	.21	11	.05
Maintenance of Reservoirs, Dams, and Waterways	9	.08	36	.15	29	.26	71	.30
Maintenance of Electric Plant	77	.63	14	.06	34	.30	72	.31
Maintenance of Miscellaneous Hydraulic Plant	7	.06	8	.03	7	.06	7	.03
Total, Exclusive of Pumping	509	4.18	262	1.10	223	1.97	328	1.40
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	509	4.18	262	1.10	223	1.97	328	1.40
	Hydraulic Data							
Drainage Area (square miles)	19,485		19,500		16,625		16,900	
Area of Pond at Normal Full-Pond Level (acres)	350		244		4,900		4,800	
Pondage from Maximum Draw-Down (acre-feet)	1,700		4,500		62,000		82,000	
Gross Head (feet)	52.00		76.00		67.00		109.00	
Flow at Full Station Load (cfs per kW)	.2780		.1810		.2900		.1370	
Average Number of Employees	4		NR		4		4	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1927		1958		1907		1918	

NR = Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Montana Power Co							
Name of Plant	Kerr		Morony		Rainbow		Ryan	
Post Office	Polson, MT		Great Falls, MT		Great Falls, MT		Great Falls, MT	
Location of Plant (County and State)	Lake MT		Cascade MT		Cascade MT		Cascade MT	
River	Flathead		Missouri		Missouri		Missouri	
Region and Power Supply Area	VII-30		VII-30		VII-30		VII-30	
Licensed Project No.	00005		02188		02188		02188	
	General Operating Characteristics							
Installed Generating Capacity (MW)	197.0		45.0		35.6		48.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	1,008.5		244.6		213.3		417.9	
Plant Factor Based on Nameplate Rating (percent)	58		62		68		99	
Net Peak Demand on Plant - 60 Minutes (MW)	190.0		49.0		33.0		63.0	
Net Plant Capability								
Winter Capability (MW)	180.0		47.0		35.0		60.0	
Summer Capability (MW)	180.0		47.0		35.0		60.0	
Plant Hours Connected to Load	8,760		8,758		6,569		8,760	
Planned Ultimate Capacity (MW)	197.0		45.0		35.6		48.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	1,305		228		793		1,191	
Structures and Improvements	3,126		448		2,070		754	
Reservoirs, Dams, and Waterways	6,718		2,304		4,960		2,860	
Equipment	6,620		2,302		1,702		1,916	
Roads, Railroads, and Bridges	646		4		4		12	
Total	18,416		5,287		9,530		6,733	
Cost per kW of Installed Capacity(dollars)	93		117		268		140	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	49	0.05	42	0.17	91	0.43	88	0.21
Water for Power	141	.14	51	.21	56	.26	85	.20
Hydraulic Expenses	46	.05	21	.09	34	.16	34	.08
Electric Expenses	50	.05	70	.29	90	.42	75	.18
Miscellaneous Hydraulic Power Expenses	29	.03	23	.09	104	.49	58	.14
Rents	9,267	9.19	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	16	.02	15	.06	39	.18	32	.08
Maintenance of Structures	18	.02	6	.02	30	.14	27	.06
Maintenance of Reservoirs, Dams, and Waterways	14	.01	70	.29	110	.52	15	.04
Maintenance of Electric Plant	125	.12	23	.09	224	1.05	78	.19
Maintenance of Miscellaneous Hydraulic Plant	15	.01	11	.04	14	.07	9	.02
Total, Exclusive of Pumping	9,768	9.69	333	1.36	793	3.71	502	1.20
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	9,768	9.69	333	1.36	793	3.71	502	1.20
	Hydraulic Data							
Drainage Area (square miles)	7,000		19,000		19,495		19,510	
Area of Pond at Normal Full-Pond Level (acres)	126,109		300		125		180	
Pondage from Maximum Draw-Down (acre-feet)	1,217,000		7,900		1,000		2,800	
Gross Head (feet)	187.00		83.00		112.00		151.00	
Flow at Full Station Load (cfs per kW)	-		.1670		.1540		.0955	
Average Number of Employees	4		NR		31		5	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1939		1930		1910		1915	

NR = Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Montana Power Co		U.S. Army Corps of Engineers				Washington Water Power Co	
Name of Plant	Thompson Falls		Fort Peck		Libby		Noxon Rapids	
Post Office	Thompson Falls, MT						Noxon, MT	
Location of Plant (County and State)	Sanders MT		McCone MT		Lincoln MT		Sanders MT	
River	Clarks Fork		Missouri River		Kootenai		Clarks Fork	
Region and Power Supply Area	VII-30		VII-30		VII-44		VII-42	
Licensed Project No.	01869						02075	
General Operating Characteristics								
Installed Generating Capacity (MW)	30.0		185.3		525.0		397.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	334.3		829.7		1,850.9		1,341.1	
Plant Factor Based on Nameplate Rating (percent)	127		51		40		39	
Net Peak Demand on Plant - 60 Minutes (MW)	42.0		203.0		525.0		528.0	
Net Plant Capability								
Winter Capability (MW)	40.0		213.0		-		554.0	
Summer Capability (MW)	40.0		213.0		-		554.0	
Plant Hours Connected to Load	8,760		NR		8,760		8,760	
Planned Ultimate Capacity (MW)	30.0		-		-		397.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	647		871		202,175		31,108	
Structures and Improvements	683		15,493		41,023		9,915	
Reservoirs, Dams, and Waterways	3,860		50,217		145,281		28,875	
Equipment	2,377		21,119		22,464		35,945	
Roads, Railroads, and Bridges	13		704		1,442		89	
Total	7,580		88,404		412,385		105,932	
Cost per kW of Installed Capacity(dollars)	253		477		785		267	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	71	0.21	303	0.37	201	0.11	47	0.04
Water for Power	25	.07	0	.00	0	.00	0	.00
Hydraulic Expenses	27	.08	3	.00	1	.00	13	.01
Electric Expenses	207	.62	568	.68	310	.17	407	.30
Miscellaneous Hydraulic Power Expenses	32	.09	80	.10	12	.01	78	.06
Rents	1	.00	603	.73	1,841	.99	53	.04
Maintenance Expenses								
Maintenance Supervision and Engineering	30	.09	131	.16	266	.15	18	.01
Maintenance of Structures	8	.02	247	.30	63	.03	53	.04
Maintenance of Reservoirs, Dams, and Waterways	3	.01	60	.07	0	.00	112	.08
Maintenance of Electric Plant	43	.13	505	.61	253	.14	332	.25
Maintenance of Miscellaneous Hydraulic Plant	12	.03	76	.09	32	.02	30	.02
Total, Exclusive of Pumping	460	1.38	2,576	3.10	2,998	1.62	1,143	.85
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	460	1.38	2,576	3.10	2,998	1.62	1,143	.85
Hydraulic Data								
Drainage Area (square miles)	20,940		57,500		-		21,800	
Area of Pond at Normal Full-Pond Level (acres)	1,450		240,000		-		8,530	
Pondage from Maximum Draw-Down (acre-feet)	15,000		86		-		334,000	
Gross Head (feet)	60.00		193.00		-		152.00	
Flow at Full Station Load (cfs per kW)	.2780		-		-		.0910	
Average Number of Employees	9		26		26		13	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1915		1943		1976		1959	

NR = Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Central Nebraska Pub P&I Dist		Loup River Public Power District	Nebraska Public Power District
Name of Plant	Jeffery Canyon [1]	Kingsley	Columbus	North Platte Hydro
Post Office	Brady, NE		Columbus, NE	North Platte, NE
Location of Plant (County and State)	Lincoln NE	Keith NE	Platte NE	Lincoln NE
River	Diversion Fr. Platte	North Platte River	Loup	Platte
Region and Power Supply Area	VI-26	VI-26	VI-26	VI-23
Licensed Project No.	01417	01417	01256	01835
General Operating Characteristics				
Installed Generating Capacity (MW)	54.0	50.0	39.9	29.0
Pumping Energy - Pumped Storage (million kWh)	-	-	-	-
Net Generation (million kWh)	338.7	112.1	105.5	165.2
Plant Factor Based on Nameplate Rating (percent)	72	26	30	65
Net Peak Demand on Plant - 60 Minutes (MW)	18.0	48.5	39.0	24.0
Net Plant Capability				
Winter Capability (MW)	56.0	38.0	40.0	24.0
Summer Capability (MW)	56.0	38.0	39.7	24.0
Plant Hours Connected to Load	8,760	8,560	2,036	8,706
Planned Ultimate Capacity (MW)	54.0	-	39.9	29.0
Historical Plant Cost (thousand dollars)				
Land and Land Rights	7,044	79	732	773
Structures and Improvements	1,153	47,217	553	395
Reservoirs, Dams, and Waterways	28,551	7,028	4,508	10,595
Equipment	2,937	1,542	864	798
Roads, Railroads, and Bridges	78	0	232	323
Total	39,763	55,866	6,970	12,885
Cost per kW of Installed Capacity(dollars)	736	1,117	175	444

Power Production Expenses	Jeffery Canyon $1,000	Jeffery Canyon Mills/kWh	Kingsley $1,000	Kingsley Mills/kWh	Columbus $1,000	Columbus Mills/kWh	North Platte Hydro $1,000	North Platte Hydro Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1,674	4.94	191	1.70	87	0.83	37	0.22
Water for Power	14	.04	14	.12	9	.08	9	.05
Hydraulic Expenses	225	.67	0	.00	211	2.00	250	1.52
Electric Expenses	0	.00	0	.00	154	1.46	108	.65
Miscellaneous Hydraulic Power Expenses	14	.04	11	.10	12	.11	43	.26
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	0	.00	0	.00	28	.26	183	1.11
Maintenance of Structures	83	.24	2	.02	8	.07	21	.13
Maintenance of Reservoirs, Dams, and Waterways	1,383	4.08	0	.00	338	3.21	882	5.34
Maintenance of Electric Plant	131	.39	21	.19	53	.50	18	.11
Maintenance of Miscellaneous Hydraulic Plant	1	.00	5	.05	125	1.19	75	.46
Total, Exclusive of Pumping	3,524	10.40	244	2.18	[2] 1,025	9.72	1,627	9.85
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	3,524	10.40	244	2.18	1,025	9.72	1,627	9.85

Hydraulic Data	Jeffery Canyon	Kingsley	Columbus	North Platte Hydro
Drainage Area (square miles)	-	29,300	14,800	37,000
Area of Pond at Normal Full-Pond Level (acres)	575	30,300	950	90
Pondage from Maximum Draw-Down (acre-feet)	14	82	2,000	586
Gross Head (feet)	117.00	140.00	116.00	218.00
Flow at Full Station Load (cfs per kW)	-	-	.1170	-
Average Number of Employees	[3] 1	[3] 1	7	6
Type of Plant Operation	Conventional	Conventional	Conventional	Conventional
Initial Year of Plant Operation	1940	1985	1936	1936

[1] Includes statistics for Johnson 1 and Johnson 2.

[2] Includes costs for Monroe hydro plant.

[3] Operated remotely.

NR=Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	New England Power Co				Public Service Co of NH			
Name of Plant	Comerford		S C Moore		Amoskeag		Smith	
Post Office	East Barnet, VT		Littleton, NH		Manchester, NH		Berlin, NH	
Location of Plant (County and State)	Grafton NH		Grafton NH		Hillsborough NH		Coos NH	
River	Connecticut		Connecticut		Merrimack		Androscoggin	
Region and Power Supply Area	I-02		I-02		I-02		I-02	
Licensed Project No.	02077		02277		01893		02287	
General Operating Characteristics								
Installed Generating Capacity (MW)	140.0		140.0		16.0		15.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	221.8		195.3		59.1		90.4	
Plant Factor Based on Nameplate Rating (percent)	18		16		42		69	
Net Peak Demand on Plant - 60 Minutes (MW)	163.0		192.0		17.0		17.0	
Net Plant Capability								
Winter Capability (MW)	161.9		191.5		17.5		15.9	
Summer Capability (MW)	160.3		190.9		17.1		16.6	
Plant Hours Connected to Load	6,391		6,403		6,774		8,356	
Planned Ultimate Capacity (MW)	140.4		140.4		16.0		15.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	1,888		2,460		382		413	
Structures and Improvements	1,230		3,024		159		673	
Reservoirs, Dams, and Waterways	9,663		16,490		1,532		2,268	
Equipment	2,698		7,984		880		879	
Roads, Railroads, and Bridges	371		0		1		37	
Total	15,850		29,958		2,955		4,271	
Cost per kW of Installed Capacity(dollars)	113		213		185		285	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	111	0.50	69	0.35	43	0.73	21	0.23
Water for Power	66	.30	52	.26	435	7.35	66	.73
Hydraulic Expenses	48	.21	37	.19	6	.10	10	.11
Electric Expenses	198	.89	32	.16	1	.02	12	.13
Miscellaneous Hydraulic Power Expenses	166	.75	26	.13	31	.52	21	.23
Rents	7	.03	6	.03	2	.03	2	.02
Maintenance Expenses								
Maintenance Supervision and Engineering	77	.35	58	.30	31	.52	13	.14
Maintenance of Structures	55	.25	6	.03	112	1.90	1	.01
Maintenance of Reservoirs, Dams, and Waterways	167	.75	6	.03	16	.27	15	.16
Maintenance of Electric Plant	85	.38	75	.38	129	2.17	66	.73
Maintenance of Miscellaneous Hydraulic Plant	17	.08	16	.08	19	.32	21	.23
Total, Exclusive of Pumping	996	4.49	382	1.95	825	13.94	245	2.71
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	996	4.49	382	1.95	825	13.94	245	2.71
Hydraulic Data								
Drainage Area (square miles)	1,635		1,600		2,854		1,365	
Area of Pond at Normal Full-Pond Level (acres)	1,093		3,490		478		6	
Pondage from Maximum Draw-Down (acre-feet)	29,356		114,176		2,000		3	
Gross Head (feet)	179.00		159.00		46.00		87.00	
Flow at Full Station Load (cfs per kW)	.0740		.0845		.3050		.1720	
Average Number of Employees	39		NR		1		1	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1930		1957		1922		1948	

NR = Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Jersey Central Power & Light Co		New York State Elec & Gas Corp				Niagara Mohawk Power Corp	
Name of Plant	Yards Creek		High Falls		Mechanicville		Bennetts Bridge	
Post Office	Blairstown, NJ		Moffitsville, NY				Orwell, NY	
Location of Plant (County and State)	Warren NJ		Clinton NY		Stillwater NY		Oswego NY	
River	Yards Creek		Saranac		Hudson		South Salmon	
Region and Power Supply Area	I-05		I-03		VII-41		I-03	
Licensed Project No.			02738		02934			
General Operating Characteristics								
Installed Generating Capacity (MW)	386.8		14.1		18.5		27.0	
Pumping Energy - Pumped Storage (million kWh)	968.6		-		-		-	
Net Generation (million kWh)	842.2		77.3		76.3		73.4	
Plant Factor Based on Nameplate Rating (percent)	16		60		53		31	
Net Peak Demand on Plant - 60 Minutes (MW)	672.0		15.9		16.9		28.0	
Net Plant Capability								
Winter Capability (MW)	330.0		14.1		17.4		27.0	
Summer Capability (MW)	330.0		14.1		16.4		26.4	
Plant Hours Connected to Load	2,653		8,722		8,423		NR	
Planned Ultimate Capacity (MW)	386.9		14.1		-		27.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	575		387		2,681		752	
Structures and Improvements	5,280		346		6,413		271	
Reservoirs, Dams, and Waterways	13,887		1,442		7,563		12,601	
Equipment	17,866		1,147		24,878		1,533	
Roads, Railroads, and Bridges	419		10		0		0	
Total	37,829		3,331		41,534		15,158	
Cost per kW of Installed Capacity(dollars)	196		236		2,617		561	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	59	0.09	64	0.83	72	0.94	6	0.06
Water for Power	0	.00	0	.00	0	.00	6	.08
Hydraulic Expenses	25	.04	0	.00	0	.00	11	.16
Electric Expenses	33	.05	2	.02	2	.02	111	1.52
Miscellaneous Hydraulic Power Expenses	352	.55	51	.66	103	1.34	13	.18
Rents	22	.04	0	.00	1	.02	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	200	.31	12	.16	23	.30	6	.08
Maintenance of Structures	214	.33	8	.10	13	.17	11	.14
Maintenance of Reservoirs, Dams, and Waterways	415	.65	15	.19	47	.61	-27	.00
Maintenance of Electric Plant	385	.60	87	1.12	53	.69	31	.43
Maintenance of Miscellaneous Hydraulic Plant	123	.19	11	.14	13	.18	23	.32
Total, Exclusive of Pumping	1,827	2.85	249	3.22	326	4.26	191	2.60
Cost of Pumping Energy	14,848	.00	0	.00	0	.00	0	.00
Total Production Expenses	16,675	25.97	249	3.22	326	4.26	191	2.60
Hydraulic Data								
Drainage Area (square miles)	5		495		4,600		191	
Area of Pond at Normal Full-Pond Level (acres)	264		55		-		3,550	
Pondage from Maximum Draw-Down (acre-feet)	4,650		560		3		53,500	
Gross Head (feet)	760.00		272.00		19.00		264.00	
Flow at Full Station Load (cfs per kW)	-		-		-		.0580	
Average Number of Employees	12		NR		NR		12	
Type of Plant Operation	Pumped Storage		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1965		1948		1983		1914	

NR = Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	**Niagara Mohawk Power Corp**							
Name of Plant	**Colton**		**E J West**		**Five Falls**		**Prospect**	
Post Office	Colton, NY		Hadley, NY		South Colton, NY		Russia, NY	
Location of Plant (County and State)	St. Lawrence NY		Saratoga NY		St. Lawrence NY		Oneida NY	
River	Raquette		Sacandaga		Raquette		West Canada Creek	
Region and Power Supply Area	I-03		I-03		I-03		I-03	
Licensed Project No.	02320		02318		02084		02701	
	General Operating Characteristics							
Installed Generating Capacity (MW)	30.0		20.0		23.0		17.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	201.3		67.6		89.8		70.7	
Plant Factor Based on Nameplate Rating (percent)	77		39		45		47	
Net Peak Demand on Plant - 60 Minutes (MW)	28.0		20.0		24.0		18.0	
Net Plant Capability								
Winter Capability (MW)	28.0		15.3		23.9		18.0	
Summer Capability (MW)	28.0		15.3		23.9		18.0	
Plant Hours Connected to Load	NR		NR		NR		NR	
Planned Ultimate Capacity (MW)	30.0		20.0		23.0		17.3	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	81		339		252		520	
Structures and Improvements	412		307		669		808	
Reservoirs, Dams, and Waterways	4,485		713		2,536		3,173	
Equipment	948		2,001		1,488		1,242	
Roads, Railroads, and Bridges	31		92		13		106	
Total	5,957		3,452		4,958		5,849	
Cost per kW of Installed Capacity(dollars)	199		173		216		344	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	9	0.05	4	0.06	5	0.05	4	0.05
Water for Power	8	.04	986	14.60	5	.05	4	.05
Hydraulic Expenses	18	.09	11	.17	10	.11	29	.41
Electric Expenses	189	.94	24	.36	11	.13	1	.02
Miscellaneous Hydraulic Power Expenses	23	.11	18	.27	10	.11	3	.05
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	7	.03	4	.06	5	.05	4	.05
Maintenance of Structures	7	.03	3	.05	7	.08	4	.05
Maintenance of Reservoirs, Dams, and Waterways	43	.22	-3	.00	-17	.00	58	.82
Maintenance of Electric Plant	62	.31	79	1.18	27	.30	21	.29
Maintenance of Miscellaneous Hydraulic Plant	11	.05	2	.03	2	.03	3	.05
Total, Exclusive of Pumping	376	1.87	1,130	16.72	65	.72	130	1.84
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	376	1.87	1,130	16.72	65	.72	130	1.84
	Hydraulic Data							
Drainage Area (square miles)	975		1,044		932		375	
Area of Pond at Normal Full-Pond Level (acres)	152		26,700		120		176	
Pondage from Maximum Draw-Down (acre-feet)	620		31		643		804	
Gross Head (feet)	285.00		63.00		104.00		138.00	
Flow at Full Station Load (cfs per kW)	.0580		.2500		.1350		.1020	
Average Number of Employees	NR		NR		NR		NR	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1918		1930		1955		1959	

NR = Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Niagara Mohawk Power Corp			
Name of Plant	Rainbow Falls	School Street	Sherman Island	South Colton
Post Office	Parishville, NY	Cahoes, NY	Glen Falls, NY	South Colton, NY
Location of Plant (County and State)	St. Lawrence NY	Albany NY	Warren NY	St. Lawrence NY
River	Raquette	Mohawk	Hudson	Raquette
Region and Power Supply Area	I-03	I-03	I-03	I-03
Licensed Project No.	02084	02539	02462	02084
	General Operating Characteristics			
Installed Generating Capacity (MW)	23.0	39.0	29.0	19.0
Pumping Energy - Pumped Storage (million kWh)	-	-	-	-
Net Generation (million kWh)	90.4	159.4	139.0	74.8
Plant Factor Based on Nameplate Rating (percent)	45	47	55	45
Net Peak Demand on Plant - 60 Minutes (MW)	23.0	32.0	21.0	20.0
Net Plant Capability				
Winter Capability (MW)	23.7	26.0	28.0	18.5
Summer Capability (MW)	23.7	31.4	28.0	20.0
Plant Hours Connected to Load	NR	NR	NR	NR
Planned Ultimate Capacity (MW)	23.0	39.0	29.0	19.4
	Historical Plant Cost (thousand dollars)			
Land and Land Rights	771	254	1,277	345
Structures and Improvements	678	637	1,153	637
Reservoirs, Dams, and Waterways	3,823	3,533	15,274	1,833
Equipment	1,559	3,366	3,609	1,414
Roads, Railroads, and Bridges	12	0	28	4
Total	6,844	7,790	21,342	4,232
Cost per kW of Installed Capacity(dollars)	297	200	736	223

	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	5	0.05	12	0.07	6	0.04	4	0.06
Water for Power	5	.05	8	.05	127	.91	4	.05
Hydraulic Expenses	13	.14	23	.15	14	.10	10	.14
Electric Expenses	13	.14	10	.06	29	.21	13	.17
Miscellaneous Hydraulic Power Expenses	11	.12	15	.10	6	.04	10	.14
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	5	.05	8	.05	6	.05	4	.06
Maintenance of Structures	5	.05	34	.21	32	.23	6	.08
Maintenance of Reservoirs, Dams, and Waterways	-28	.00	7	.04	-11	.00	-23	.00
Maintenance of Electric Plant	30	.34	118	.74	47	.34	92	1.23
Maintenance of Miscellaneous Hydraulic Plant	1	.02	3	.02	9	.07	1	.02
Total, Exclusive of Pumping	59	.66	239	1.50	266	1.91	121	1.62
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	59	.66	239	1.50	266	1.91	121	1.62

	Hydraulic Data			
Drainage Area (square miles)	929	3,455	2,785	942
Area of Pond at Normal Full-Pond Level (acres)	710	80	300	225
Pondage from Maximum Draw-Down (acre-feet)	9,871	240	1,700	1,492
Gross Head (feet)	102.00	95.00	69.00	85.00
Flow at Full Station Load (cfs per kW)	.1390	.1480	.2300	.1740
Average Number of Employees	NR	NR	NR	NR
Type of Plant Operation	Conventional	Conventional	Conventional	Conventional
Initial Year of Plant Operation	1956	1915	1923	1954

NR = Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Niagara Mohawk Power Corp							
Name of Plant	Spier Falls		Stark		Stewarts Bridge		Trenton Falls	
Post Office	Corinth, NY		Colton, NY		Hadley, NY		Trenton Falls, NY	
Location of Plant (County and State)	Saratoga NY		St. Lawrence NY		Saratoga NY		Oneida NY	
River	Hudson		Raquette		Sacandaga		West Canada Creek	
Region and Power Supply Area	I-03		I-03		I-03		I-03	
Licensed Project No.	02482		02084		02047		02701	
General Operating Characteristics								
Installed Generating Capacity (MW)	44.0		23.0		30.0		24.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	216.1		85.3		125.3		119.8	
Plant Factor Based on Nameplate Rating (percent)	56		43		48		57	
Net Peak Demand on Plant - 60 Minutes (MW)	47.0		23.0		36.0		29.0	
Net Plant Capability								
Winter Capability (MW)	43.3		23.0		29.0		24.0	
Summer Capability (MW)	47.3		23.0		31.2		24.0	
Plant Hours Connected to Load	NR		NR		NR		NR	
Planned Ultimate Capacity (MW)	44.4		23.0		30.0		24.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	1,735		1,044		2,042		194	
Structures and Improvements	1,361		791		709		642	
Reservoirs, Dams, and Waterways	4,629		3,141		5,056		13,168	
Equipment	2,362		1,483		1,833		2,767	
Roads, Railroads, and Bridges	0		11		155		0	
Total	10,087		6,474		9,795		16,771	
Cost per kW of Installed Capacity(dollars)	229		281		327		699	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	10	0.04	5	0.06	6	0.05	5	0.04
Water for Power	154	.71	5	.05	168	1.34	5	.04
Hydraulic Expenses	20	.09	13	.15	8	.07	72	.60
Electric Expenses	32	.15	10	.12	15	.12	5	.04
Miscellaneous Hydraulic Power Expenses	28	.13	12	.14	14	.11	5	.04
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	10	.04	5	.06	7	.05	5	.04
Maintenance of Structures	9	.04	5	.06	6	.05	10	.08
Maintenance of Reservoirs, Dams, and Waterways	-43	.00	-26	.00	-37	.00	-12	.00
Maintenance of Electric Plant	67	.31	28	.33	38	.30	96	.80
Maintenance of Miscellaneous Hydraulic Plant	10	.05	4	.05	11	.09	12	.10
Total, Exclusive of Pumping	296	1.37	60	.70	236	1.88	202	1.68
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	296	1.37	60	.70	236	1.88	202	1.68
Hydraulic Data								
Drainage Area (square miles)	2,779		877		4,062		376	
Area of Pond at Normal Full-Pond Level (acres)	410		586		480		9	
Pondage from Maximum Draw-Down (acre-feet)	3,300		11,430		3,100		156	
Gross Head (feet)	83.00		105.00		100.00		268.00	
Flow at Full Station Load (cfs per kW)	.1790		.1330		.1480		.0576	
Average Number of Employees	3		NR		NR		NR	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1924		1957		1952		1901	

NR = Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Orange & Rockland Utils Inc		Power Authority of State of NY					
Name of Plant	Grahamsville		Blenheim - Gilboa		Moses Niagara [1]		Moses Power Dam	
Post Office	Grahamsville, NY				Massena, NY		Niagara Falls, NY	
Location of Plant (County and State)	Sullivan NY		Blenheim - Gilboa NY		ST. Lawrence NY		Niagara NY	
River	NY City Water Suply		Scholan) Creek		St. Lawrence		Niagara	
Region and Power Supply Area	I-03		I-03		I-03		I-03	
Licensed Project No.			02685		02000		02216	
	General Operating Characteristics							
Installed Generating Capacity (MW)	18.0		1,000.0		2,190.0		912.0	
Pumping Energy - Pumped Storage (million kWh)	–		–		–		–	
Net Generation (million kWh)	137.6		-82.2		17,126.5		7,368.6	
Plant Factor Based on Nameplate Rating (percent)	87		–		89		92	
Net Peak Demand on Plant - 60 Minutes (MW)	18.0		1,039.0		2,499.0		954.0	
Net Plant Capability								
Winter Capability (MW)	17.8		1,000.0		2,400.0		800.0	
Summer Capability (MW)	17.8		1,000.0		2,400.0		800.0	
Plant Hours Connected to Load	8,413		8,760		8,760		8,760	
Planned Ultimate Capacity (MW)	18.0		1,000.0		2,222.0		2,190.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	511		3,044		41,179		2,684	
Structures and Improvements	809		42,623		104,034		43,881	
Reservoirs, Dams, and Waterways	1,216		78,422		383,426		211,032	
Equipment	1,573		85,229		218,372		165,245	
Roads, Railroads, and Bridges	21		5,489		31,067		5,622	
Total	4,130		214,807		778,078		428,464	
Cost per kW of Installed Capacity(dollars)	229		215		355		470	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	9	0.07	395	0.00	460	0.03	366	0.05
Water for Power	1,419	10.31	0	.00	0	.00	0	.00
Hydraulic Expenses	7	.05	52	.00	1,439	.08	34	.00
Electric Expenses	48	.35	715	.00	1,505	.09	1,200	.16
Miscellaneous Hydraulic Power Expenses	30	.22	1,055	.00	2,923	.17	1,319	.18
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	30	.22	614	.00	1,267	.07	1,714	.23
Maintenance of Structures	2	.01	323	.00	1,645	.10	565	.08
Maintenance of Reservoirs, Dams, and Waterways	5	.03	222	.00	692	.04	401	.05
Maintenance of Electric Plant	10	.07	1,627	.00	3,417	.20	3,118	.42
Maintenance of Miscellaneous Hydraulic Plant	0	.00	712	.00	1,656	.10	1,488	.20
Total, Exclusive of Pumping	1,559	11.33	5,716	.00	15,005	.88	10,204	1.38
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	1,559	11.33	5,716	.00	15,005	.88	10,204	1.38
	Hydraulic Data							
Drainage Area (square miles)	372		–		300,000		260,400	
Area of Pond at Normal Full-Pond Level (acres)	5,800		390		30,000		–	
Pondage from Maximum Draw-Down (acre-feet)	316.805		48		–		–	
Gross Head (feet)	440.00		1,065.00		81.00		310.00	
Flow at Full Station Load (cfs per kW)	.0441		–		.1770		.0423	
Average Number of Employees	1		161		328		266	
Type of Plant Operation	Conventional		Pumped Storage		Conventional		Conventional	
Initial Year of Plant Operation	1956		1973		1958		1961	

[1] Includes data for Lewiston pumped storage.

NR = Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Rochester Gas & Electric Corp		Carolina Power & Light Co					
Name of Plant	Rochester No 5		Blewett		Tillery		Walters	
Post Office	,				Mt. Gilead, NC		Waterville, NC	
Location of Plant (County and State)	Rochester NY		Lilesville NC		Montgomery NC		Haywood NC	
River	Genesee River		Pee Dee		Yadkin		Pigeon	
Region and Power Supply Area	I-03		III-21		III-21		III-21	
Licensed Project No.			02206		02206		00432	
General Operating Characteristics								
Installed Generating Capacity (MW)	38.3		25.0		84.0		106.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	156.6		136.6		223.3		313.2	
Plant Factor Based on Nameplate Rating (percent)	47		62		30		33	
Net Peak Demand on Plant - 60 Minutes (MW)	440.0		26.0		86.0		110.0	
Net Plant Capability								
Winter Capability (MW)	39.0		22.0		86.0		105.0	
Summer Capability (MW)	43.0		25.0		86.0		100.0	
Plant Hours Connected to Load	8,760		5,961		8,759		4,962	
Planned Ultimate Capacity (MW)	-		25.0		64.0		106.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	54		501		1,059		575	
Structures and Improvements	1,324		756		1,251		1,061	
Reservoirs, Dams, and Waterways	6,513		2,785		3,732		9,770	
Equipment	2,047		3,353		3,937		2,454	
Roads, Railroads, and Bridges	0		13		0		5	
Total	9,938		7,406		9,580		13,867	
Cost per kW of Installed Capacity(dollars)	260		296		119		128	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	89	0.56	23	0.17	34	0.15	56	0.18
Water for Power	[1] 176	1.11	25	.18	38	.17	0	.00
Hydraulic Expenses	149	.94	14	.11	7	.03	50	.16
Electric Expenses	134	.84	118	.87	78	.35	160	.51
Miscellaneous Hydraulic Power Expenses	32	.20	171	1.25	144	.64	177	.57
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	36	.23	24	.18	39	.17	71	.23
Maintenance of Structures	49	.31	79	.58	-9	.00	101	.32
Maintenance of Reservoirs, Dams, and Waterways	51	.32	66	.48	232	1.04	105	.34
Maintenance of Electric Plant	111	.70	69	.51	78	.35	72	.23
Maintenance of Miscellaneous Hydraulic Plant	182	1.15	46	.34	55	.25	63	.20
Total, Exclusive of Pumping	1,009	6.36	635	4.65	694	3.11	655	2.73
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	1,009	6.36	635	4.65	694	3.11	655	2.73
Hydraulic Data								
Drainage Area (square miles)	2,460		6,600		4,600		470	
Area of Pond at Normal Full-Pond Level (acres)	-		2,250		5,000		340	
Pondage from Maximum Draw-Down (acre-feet)	6		32,000		86,000		20,250	
Gross Head (feet)	138.00		50.00		72.00		861.00	
Flow at Full Station Load (cfs per kW)	-		.3410		.2040		.0204	
Average Number of Employees	3		19		9		19	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation			1911		1928		1929	

---

[1] Exclusive of $514,676 cost of water rights.

NR=Not Reported.

Notes: Totals may not equal sum of components because of independant rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Duke Power Co							
Name of Plant	Cowans Ford		Lookout Shoals		Mountain Island		Oxford	
Post Office	Mt. Holly, NC		Catawba, NC		Mt. Holly, NC		Conover, NC	
Location of Plant (County and State)	Lincoln NC		Iredell NC		Gaston NC		Catawba NC	
River	Catawba River		Catawba River		Catawba River		Catawba River	
Region and Power Supply Area	III-21		III-21		III-21		III-21	
Licensed Project No.	02232		02232		02232		02232	
General Operating Characteristics								
Installed Generating Capacity (MW)	350.0		18.7		60.0		36.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	177.6		93.1		128.1		101.9	
Plant Factor Based on Nameplate Rating (percent)	6		57		24		32	
Net Peak Demand on Plant - 60 Minutes (MW)	346.0		25.0		60.0		40.0	
Net Plant Capability								
Winter Capability (MW)	225.2		20.9		53.6		36.4	
Summer Capability (MW)	225.2		20.9		53.6		36.4	
Plant Hours Connected to Load	1,021		6,024		4,939		6,539	
Planned Ultimate Capacity (MW)	350.0		18.7		60.0		36.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	11,511		82		641		1,208	
Structures and Improvements	8,545		86		297		184	
Reservoirs, Dams, and Waterways	16,860		1,351		2,931		2,135	
Equipment	17,043		328		1,012		1,013	
Roads, Railroads, and Bridges	682		0		0		0	
Total	54,642		1,847		4,882		4,539	
Cost per kW of Installed Capacity(dollars)	156		99		81		126	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	0	0.00	0	0.00	0	0.00	0	0.00
Water for Power	0	.00	0	.00	0	.00	0	.00
Hydraulic Expenses	181	1.02	0	.00	0	.00	26	.25
Electric Expenses	49	.28	315	3.38	318	2.48	318	3.12
Miscellaneous Hydraulic Power Expenses	394	2.22	33	.35	31	.24	25	.24
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	59	.33	10	.11	3	.03	4	.04
Maintenance of Structures	43	.24	25	.27	1	.01	29	.28
Maintenance of Reservoirs, Dams, and Waterways	0	.00	39	.41	17	.13	164	1.61
Maintenance of Electric Plant	150	.85	66	.71	148	1.16	377	3.70
Maintenance of Miscellaneous Hydraulic Plant	83	.46	-5	.00	-2	.00	-15	.00
Total, Exclusive of Pumping	958	5.40	482	5.20	517	4.00	927	9.10
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	958	5.40	482	5.20	517	4.00	927	9.10
Hydraulic Data								
Drainage Area (square miles)	1,770		1,410		1,800		1,250	
Area of Pond at Normal Full-Pond Level (acres)	32,510		1,270		3,235		4,110	
Pondage from Maximum Draw-Down (acre-feet)	617,800		-		25,987		52,291	
Gross Head (feet)	111.00		77.00		76.00		90.00	
Flow at Full Station Load (cfs per kW)	.1230		.1890		.1810		.1630	
Average Number of Employees	5		9		9		9	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1963		1915		1923		1928	

NR = Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Nantahala Power & Light Co				Tapoco Inc			
Name of Plant	Nantahala		Thorpe		Cheoah		Santeetlah	
Post Office	Nantahala, NC		Glenville, NC		Robbinsville, NC		Robbinsville, NC	
Location of Plant (County and State)	Macon NC		Jackson NC		Graham NC		Graham NC	
River	Nantahala		W.F.		Little Tennessee		Cheoah	
Region and Power Supply Area	III-21		III-21		III-21		III-21	
Licensed Project No.	02692		02686		02169		02169	
	General Operating Characteristics							
Installed Generating Capacity (MW)	43.0		22.0		110.0		45.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	192.4		63.8		408.4		161.4	
Plant Factor Based on Nameplate Rating (percent)	51		33		42		41	
Net Peak Demand on Plant - 60 Minutes (MW)	46.0		22.0		112.0		41.0	
Net Plant Capability								
Winter Capability (MW)	46.0		22.0		112.0		42.0	
Summer Capability (MW)	46.0		22.0		111.0		39.0	
Plant Hours Connected to Load	5,551		4,668		5,930		4,942	
Planned Ultimate Capacity (MW)	43.2		22.0		110.0		45.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	244		326		80		411	
Structures and Improvements	477		649		1,400		222	
Reservoirs, Dams, and Waterways	8,285		4,885		5,081		7,455	
Equipment	808		585		3,136		1,298	
Roads, Railroads, and Bridges	177		31		66		20	
Total	9,990		6,475		9,763		9,407	
Cost per kW of Installed Capacity(dollars)	232		294		89		209	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	28	0.15	18	0.28	127	0.31	25	0.15
Water for Power	0	.00	0	.00	0	.00	0	.00
Hydraulic Expenses	72	.38	53	.83	5	.01	22	.14
Electric Expenses	197	1.02	160	2.51	377	.92	93	.58
Miscellaneous Hydraulic Power Expenses	37	.19	36	.57	86	.21	20	.12
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	15	.08	10	.16	43	.11	30	.18
Maintenance of Structures	15	.08	24	.38	96	.24	11	.07
Maintenance of Reservoirs, Dams, and Waterways	36	.19	6	.09	38	.09	244	1.51
Maintenance of Electric Plant	21	.11	15	.24	174	.42	136	.84
Maintenance of Miscellaneous Hydraulic Plant	1	.00	1	.01	12	.03	6	.04
Total, Exclusive of Pumping	422	2.19	324	5.07	960	2.35	587	3.60
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	422	2.19	324	5.07	960	2.35	587	3.60
	Hydraulic Data							
Drainage Area (square miles)	108		37		1,608		176	
Area of Pond at Normal Full-Pond Level (acres)	1,605		1,462		595		2,863	
Pondage from Maximum Draw-Down (acre-feet)	126,002		67,096		1,765		133,292	
Gross Head (feet)	1,006.00		1,207.00		189.00		663.00	
Flow at Full Station Load (cfs per kW)	.0137		.0118		.0704		.0224	
Average Number of Employees	15		15		36		[1] NR	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1942		1941		1919		1928	

[1] Operated remotely from Cheoah when needed.

NR=Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Virginia Electric & Power Co				Yadkin Inc			
Name of Plant	Gaston		Roanoke Rapids		Falls		High Rock	
Post Office	Roanoke Rapids, NC		Roanoke Rapids, NC		Troy, NC		Lexington, NC	
Location of Plant (County and State)	Halifax NC		Halifax NC		Stanley NC		Davidson NC	
River	Roanoke		Roanoke		Yadkin		Yadkin	
Region and Power Supply Area	III-18		III-21		III-21		III-21	
Licensed Project No.	02009		02009		02197		02197	
General Operating Characteristics								
Installed Generating Capacity (MW)	178.0		100.0		31.5		33.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	506.1		457.7		143.3		155.8	
Plant Factor Based on Nameplate Rating (percent)	32		52		52		54	
Net Peak Demand on Plant - 60 Minutes (MW)	225.0		107.0		30.8		39.0	
Net Plant Capability								
Winter Capability (MW)	225.0		102.0		30.0		33.0	
Summer Capability (MW)	225.0		102.0		30.0		27.0	
Plant Hours Connected to Load	5,312		8,754		6,129		6,102	
Planned Ultimate Capacity (MW)	178.0		100.1		29.5		33.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	7,729		1,472		14		3,033	
Structures and Improvements	1,800		2,258		134		96	
Reservoirs, Dams, and Waterways	24,348		20,643		2,137		2,867	
Equipment	10,023		9,278		5,188		4,133	
Roads, Railroads, and Bridges	53		68		1		6	
Total	43,952		33,718		7,474		10,136	
Cost per kW of Installed Capacity(dollars)	247		337		237		307	
Power Production Expenses								
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	245	0.48	212	0.46	0	0.00	0	0.00
Water for Power	122	.24	111	.24	0	.00	0	.00
Hydraulic Expenses	101	.20	9	.02	17	.12	0	.00
Electric Expenses	176	.35	201	.44	16	.11	75	.48
Miscellaneous Hydraulic Power Expenses	76	.15	210	.46	10	.07	16	.10
Rents	0	.00	0	.00	0	.00	14	.09
Maintenance Expenses							0	.00
Maintenance Supervision and Engineering	88	.17	114	.25	35	.25	35	.23
Maintenance of Structures	45	.09	129	.28	65	.46	54	.35
Maintenance of Reservoirs, Dams, and Waterways	64	.13	139	.30	63	.44	39	.25
Maintenance of Electric Plant	288	.57	296	.65	20	.14	23	.15
Maintenance of Miscellaneous Hydraulic Plant	78	.15	195	.43	27	.19	119	.77
Total, Exclusive of Pumping	1,284	2.54	1,616	3.53	253	1.80	375	2.40
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	1,284	2.54	1,616	3.53	253	1.80	375	2.40
Hydraulic Data								
Drainage Area (square miles)	8,339		8,395		4,190		3,980	
Area of Pond at Normal Full-Pond Level (acres)	20,300		4,900		204		15,180	
Pondage from Maximum Draw-Down (acre-feet)	95,000		25,100		1,824		234,866	
Gross Head (feet)	68.00		76.00		54.00		61.00	
Flow at Full Station Load (cfs per kW)	.1940		.1700		.2750		.2540	
Average Number of Employees	[1] NR		32		NR		NR	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1963		1955		1919		1927	

[1] Supervisory control from Roanoke Rapids.

NR=Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	**Yadkin Inc**				**U.S. Army Corps of Engineers**		**Ohio Power Co**	
Name of Plant	**Narrows**		**Tuckertown**		**Garrison**		**Racine**	
Post Office	Albemarle, NC		Badin, NC					
Location of Plant (County and State)	Montgomery NC		Stanley NC		Mercer ND		Racine OH	
River	Yadkin		Yadkin		Missouri River		Ohio River	
Region and Power Supply Area	III-21		III-21		VI-27		II-09	
Licensed Project No.	02197		02197				02570	
General Operating Characteristics								
Installed Generating Capacity (MW)	96.5		42.0		460.0		47.5	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	521.2		161.6		2,175.3		219.9	
Plant Factor Based on Nameplate Rating (percent)	62		44		54		53	
Net Peak Demand on Plant - 60 Minutes (MW)	108.0		40.6		475.0		41.0	
Net Plant Capability								
Winter Capability (MW)	96.0		39.0		545.0		48.0	
Summer Capability (MW)	96.0		39.0		545.0		48.0	
Plant Hours Connected to Load	6,134		6,137		NR		8,559	
Planned Ultimate Capacity (MW)	96.5		42.0		-		47.5	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	1,032		2,693		20,939		4	
Structures and Improvements	289		255		26,222		49,834	
Reservoirs, Dams, and Waterways	5,562		5,023		93,197		6,469	
Equipment	4,405		4,103		31,036		53,256	
Roads, Railroads, and Bridges	111		29		839		0	
Total	11,398		12,103		172,235		109,563	
Cost per kW of Installed Capacity(dollars)	118		288		374		2,307	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	0	0.00	0	0.00	227	0.10	216	0.98
Water for Power	0	.00	0	.00	0	.00	0	.00
Hydraulic Expenses	35	.07	18	.11	5	.00	96	.44
Electric Expenses	16	.03	16	.10	713	.33	98	.44
Miscellaneous Hydraulic Power Expenses	8	.01	10	.06	53	.02	78	.35
Rents	0	.00	0	.00	814	.37	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	35	.07	35	.22	284	.13	162	.74
Maintenance of Structures	207	.40	120	.74	22	.01	31	.14
Maintenance of Reservoirs, Dams, and Waterways	212	.41	18	.11	15	.01	19	.09
Maintenance of Electric Plant	56	.11	40	.25	492	.23	192	.87
Maintenance of Miscellaneous Hydraulic Plant	56	.11	36	.22	40	.02	53	.24
Total, Exclusive of Pumping	625	1.20	293	1.80	2,665	1.23	947	4.31
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	625	1.20	293	1.80	2,665	1.23	947	4.31
Hydraulic Data								
Drainage Area (square miles)	4,180		4,080		181,400		40,130	
Area of Pond at Normal Full-Pond Level (acres)	5,355		2,560		365,000		5,300	
Pondage from Maximum Draw-Down (acre-feet)	128,937		6,744		75		-	
Gross Head (feet)	177.00		55.00		154.00		22.00	
Flow at Full Station Load (cfs per kW)	.0790		.2473		-		-	
Average Number of Employees	NR		NR		31		5	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1917		1962		1956		1982	

NR=Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Grand River Dam Authority						U.S. Army Corps of Engineers	
Name of Plant	Markham		Pensacola		Salina		Robert S Kerr	
Post Office	Locust Grove, OK		Langley, OK		Arm of L. Hudson, OK			
Location of Plant (County and State)	Mayes OK		Mayes OK		Mayes OK		Sequoyah OK	
River	Grand (Neosho)		Grand-Neosho				Arkansas River	
Region and Power Supply Area	V-33		V-33		V-33		V-33	
Licensed Project No.	02183		01494		02524			
General Operating Characteristics								
Installed Generating Capacity (MW)	120.0		86.9		259.0		110.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	298.2		459.5		98.5		773.3	
Plant Factor Based on Nameplate Rating (percent)	28		60		4		80	
Net Peak Demand on Plant - 60 Minutes (MW)	120.0		105.0		270.0		124.0	
Net Plant Capability								
Winter Capability (MW)	114.0		90.5		259.8		110.0	
Summer Capability (MW)	114.0		90.5		259.8		110.0	
Plant Hours Connected to Load	3,329		5,361		849		6,839	
Planned Ultimate Capacity (MW)	120.0		86.9		259.2		-	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	9,228		3,181		189		5,257	
Structures and Improvements	3,012		609		2,924		19,204	
Reservoirs, Dams, and Waterways	7,725		6,351		12,123		5,049	
Equipment	5,851		2,773		13,545		13,923	
Roads, Railroads, and Bridges	173		111		1,128		38	
Total	25,989		13,026		29,909		43,471	
Cost per kW of Installed Capacity(dollars)	216		150		115		395	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	0	0.00	15	0.03	0	0.00	108	0.14
Water for Power	0	.00	0	.00	0	.00	0	.00
Hydraulic Expenses	90	.30	355	.77	22	.22	9	.01
Electric Expenses	40	.13	74	.16	34	.34	259	.33
Miscellaneous Hydraulic Power Expenses	67	.22	190	.41	40	.41	166	.21
Rents	0	.00	0	.00	0	.00	284	.37
Maintenance Expenses								
Maintenance Supervision and Engineering	17	.06	17	.04	17	.18	328	.42
Maintenance of Structures	80	.27	110	.24	72	.73	40	.05
Maintenance of Reservoirs, Dams, and Waterways	388	1.30	148	.32	125	1.27	45	.06
Maintenance of Electric Plant	96	.32	94	.20	315	3.20	0	.00
Maintenance of Miscellaneous Hydraulic Plant	68	.23	113	.25	57	.58	0	.00
Total, Exclusive of Pumping	846	2.84	1,116	2.43	683	6.94	1,238	1.60
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	846	2.84	1,116	2.43	683	6.94	1,238	1.60
Hydraulic Data								
Drainage Area (square miles)	11,660		10,298		10,298		142,756	
Area of Pond at Normal Full-Pond Level (acres)	10,000		46,295		731		42,000	
Pondage from Maximum Draw-Down (acre-feet)	-		1,191,000		11,700		2	
Gross Head (feet)	50.00		120.00		248.00		45.00	
Flow at Full Station Load (cfs per kW)	.0270		.1180		.0017		-	
Average Number of Employees	23		20		16		14	
Type of Plant Operation	Conventional		Conventional		Pumped Storage		Conventional	
Initial Year of Plant Operation	1964		1952		1971		1972	

NR = Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	U.S. Army Corps of Engineers		Eugene City of				Idaho Power Co	
Name of Plant	Table Rock		Carmen Smith		Leaburg		Hells Canyon	
Post Office	*		Mckenzie Bridge, OR		Eugene, OR		Homestead, OR	
Location of Plant (County and State)	Tulsa OK		Linn OR		Linn OR		Wallowa OR	
River	Table Rock Lake		Mckenzie		Mckenzie		Snake	
Region and Power Supply Area	V-33		VII-45		VII-45		VII-41	
Licensed Project No.			02242		02242		01971	
	General Operating Characteristics							
Installed Generating Capacity (MW)	200.0		90.0		13.5		391.5	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	432.2		216.3		95.4		1,727.8	
Plant Factor Based on Nameplate Rating (percent)	25		27		81		50	
Net Peak Demand on Plant - 60 Minutes (MW)	232.0		95.6		14.8		434.0	
Net Plant Capability								
Winter Capability (MW)	230.0		85.4		12.0		360.8	
Summer Capability (MW)	230.0		85.4		12.0		450.0	
Plant Hours Connected to Load	2,973		8,506		8,391		8,760	
Planned Ultimate Capacity (MW)	-		80.0		13.5		391.5	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	11,997		284		175		195	
Structures and Improvements	9,389		2,547		341		2,263	
Reservoirs, Dams, and Waterways	24,062		23,139		4,050		52,449	
Equipment	11,546		6,112		1,069		12,128	
Roads, Railroads, and Bridges	140		345		0		0	
Total	57,133		32,428		5,635		67,034	
Cost per kW of Installed Capacity(dollars)	286		360		417		171	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	60	0.14	32	0.15	58	0.60	63	0.04
Water for Power	0	.00	139	.64	19	.20	0	.00
Hydraulic Expenses	3	.01	31	.14	140	1.47	55	.03
Electric Expenses	201	.47	92	.43	103	1.08	165	.10
Miscellaneous Hydraulic Power Expenses	22	.05	26	.12	27	.28	139	.08
Rents	1,097	2.54	0	.00	0	.00	41	.02
Maintenance Expenses								
Maintenance Supervision and Engineering	408	.94	13	.06	26	.27	48	.03
Maintenance of Structures	27	.06	27	.12	15	.16	20	.01
Maintenance of Reservoirs, Dams, and Waterways	1	.00	67	.31	299	3.13	30	.02
Maintenance of Electric Plant	17	.04	121	.56	22	.23	190	.11
Maintenance of Miscellaneous Hydraulic Plant	13	.03	90	.41	72	.75	64	.04
Total, Exclusive of Pumping	1,849	4.28	639	2.95	780	8.18	814	.47
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	1,849	4.28	639	2.95	780	8.18	814	.47
	Hydraulic Data							
Drainage Area (square miles)	4,020		161		1,000		73,300	
Area of Pond at Normal Full-Pond Level (acres)	43,100		170		-		2,430	
Pondage from Maximum Draw-Down (acre-feet)	34		12,000		2		11,800	
Gross Head (feet)	204.00		527.00		90.00		210.00	
Flow at Full Station Load (cfs per kW)	-		.0270		.1610		.0640	
Average Number of Employees	12		5		[1] 8		5	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1959		1963		1929		1967	

[1] Includes employees at Walterville.

NR = Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Idaho Power Co		Pacific Power & Light Co					
Name of Plant	Oxbow		Clearwater No 1		Clearwater No 2		Fish Creek	
Post Office	Homestead, OR		Tokatee Falls, OR		Tokatee Falls, OR		Tokatee Falls, OR	
Location of Plant (County and State)	Baker OR		Douglas OR		Douglas OR		Douglas OR	
River	Snake		Clearwater		Clearwater		Fish Creek	
Region and Power Supply Area	VII-41		VII-45		VII-45		VII-45	
Licensed Project No.	01971		01927		01927		01927	
	General Operating Characteristics							
Installed Generating Capacity (MW)	190.0		15.0		26.0		11.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	878.6		53.7		59.5		48.2	
Plant Factor Based on Nameplate Rating (percent)	53		41		26		50	
Net Peak Demand on Plant - 60 Minutes (MW)	220.0		14.0		25.0		13.0	
Net Plant Capability								
Winter Capability (MW)	220.0		12.0		26.0		12.0	
Summer Capability (MW)	220.0		15.0		26.0		11.0	
Plant Hours Connected to Load	8,760		8,295		8,349		5,845	
Planned Ultimate Capacity (MW)	190.0		15.0		26.0		11.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	141		0		0		0	
Structures and Improvements	7,764		476		643		450	
Reservoirs, Dams, and Waterways	29,942		3,194		8,042		4,147	
Equipment	11,027		837		1,068		640	
Roads, Railroads, and Bridges	10		0		130		238	
Total	48,885		4,507		9,883		5,475	
Cost per kW of Installed Capacity(dollars)	257		300		380		498	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	49	0.06	0	0.00	0	0.00	0	0.00
Water for Power	0	.00	4	.07	7	.11	3	.06
Hydraulic Expenses	25	.03	11	.20	17	.29	19	.39
Electric Expenses	208	.24	23	.43	25	42	15	.30
Miscellaneous Hydraulic Power Expenses	53	.06	3	.05	4	.06	3	.06
Rents	24	.03	15	.28	15	.25	13	.27
Maintenance Expenses								
Maintenance Supervision and Engineering	47	.05	0	.00	0	.00	0	.00
Maintenance of Structures	92	.10	0	.00	0	.00	0	.00
Maintenance of Reservoirs, Dams, and Waterways	13	.01	2	.03	7	.12	25	.53
Maintenance of Electric Plant	189	.21	17	.32	13	.21	17	.36
Maintenance of Miscellaneous Hydraulic Plant	33	.04	3	.05	1	.02	4	.09
Total, Exclusive of Pumping	732	.83	77	1.44	89	1.49	99	2.05
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	732	.83	77	1.44	89	1.49	99	2.05
	Hydraulic Data							
Drainage Area (square miles)	72,800		42		55		65	
Area of Pond at Normal Full-Pond Level (acres)	1,150		17		9		9	
Pondage from Maximum Draw-Down (acre-feet)	5,000		154		96		75	
Gross Head (feet)	120.00		651.00		760.00		1,032.00	
Flow at Full Station Load (cfs per kW)	.1300		.0200		.0180		.0128	
Average Number of Employees	9		[1] 32		[2] NR		[2] NR	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1961		1953		1953		1952	

---

[1] Represents all licensed No. 1927 project plants as they are operated as a group.

[2] Included in Clearwater No. 1.

NR = Not Reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Pacific Power & Light Co							
Name of Plant	John C Boyle		Lemolo No 1		Lemolo No 2		Prospect No 2	
Post Office	Keno, OR		Medford, OR		Toketee Falls, OR		Prospect, OR	
Location of Plant (County and State)	Klamath OR		Douglas OR		Douglas OR		Jackson OR	
River	Klamath		North Umpqua		North Umpqua		North Fork Rogue	
Region and Power Supply Area	VII-45		VII-45		VII-45		VII-45	
Licensed Project No.	02082		01927		01927		02630	
General Operating Characteristics								
Installed Generating Capacity (MW)	80.0		29.0		33.0		32.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	269.6		125.6		166.3		239.0	
Plant Factor Based on Nameplate Rating (percent)	38		49		58		85	
Net Peak Demand on Plant - 60 Minutes (MW)	85.0		29.0		35.0		37.0	
Net Plant Capability								
Winter Capability (MW)	82.0		29.0		35.0		36.0	
Summer Capability (MW)	80.0		29.0		33.0		32.0	
Plant Hours Connected to Load	8,254		7,932		7,953		8,757	
Planned Ultimate Capacity (MW)	80.0		70.0		33.0		32.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	29		0		0		108	
Structures and Improvements	950		627		600		618	
Reservoirs, Dams, and Waterways	7,790		7,122		14,146		2,876	
Equipment	3,276		1,690		1,726		691	
Roads, Railroads, and Bridges	378		376		773		111	
Total	12,423		9,815		17,247		4,397	
Cost per kW of Installed Capacity(dollars)	155		338		[illegible]		137	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	22	0.08	0	0.00	0	0.00	0	0.00
Water for Power	20	.07	7	.06	8	.05	9	.04
Hydraulic Expenses	5	.02	26	.21	54	.32	23	.09
Electric Expenses	220	.82	44	.35	22	.13	168	.70
Miscellaneous Hydraulic Power Expenses	29	.11	33	.26	6	.03	13	.05
Rents	24	.09	53	.42	40	.24	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	0	.00	0	.00	0	.00	10	.04
Maintenance of Structures	3	.01	1	.01	0	.00	9	.04
Maintenance of Reservoirs, Dams, and Waterways	46	.17	49	.39	33	.20	44	.19
Maintenance of Electric Plant	31	.12	25	.20	21	.13	58	.24
Maintenance of Miscellaneous Hydraulic Plant	24	.09	6	.05	5	.03	18	.08
Total, Exclusive of Pumping	425	1.58	246	1.96	189	1.13	351	1.47
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	425	1.58	246	1.96	189	1.13	351	1.47
Hydraulic Data								
Drainage Area (square miles)	3,920		179		258		506	
Area of Pond at Normal Full-Pond Level (acres)	450		415		23		20	
Pondage from Maximum Draw-Down (acre-feet)	2,000		12,520		235		100	
Gross Head (feet)	463.00		756.00		728.00		607.00	
Flow at Full Station Load (cfs per kW)	.0300		.0180		.0185		.0235	
Average Number of Employees	[1] 26		[2] NR		[2] NR		[3] 38	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1958		1955		1956		1928	

---

[1] Represents all licensed No. 2082 projects in Oregon.

[2] Included in Clearwater No. 1.

[3] Includes entire Rogue River Project.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Pacific Power & Light Co						Portland General Electric Co	
Name of Plant	Slide Creek		Soda Springs		Toketee Falls		Bull Run	
Post Office	Toketee Falls, OR		Toketee Falls, OR		Toketee Falls, OR		Sandy, OR	
Location of Plant (County and State)	Douglas OR		Douglas OR		Douglas OR		Clackamas OR	
River	North Umpqua		North Umpqua		North Umpqua		Bull Run	
Region and Power Supply Area	VII-45		VII-45		VII-45		VII-44	
Licensed Project No.	01927		01927		01927		00477	
General Operating Characteristics								
Installed Generating Capacity (MW)	18.0		11.0		43.0		21.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	82.5		59.0		210.1		64.2	
Plant Factor Based on Nameplate Rating (percent)	52		61		56		35	
Net Peak Demand on Plant - 60 Minutes (MW)	18.0		14.0		43.0		20.0	
Net Plant Capability								
Winter Capability (MW)	17.0		11.5		42.0		22.0	
Summer Capability (MW)	18.0		11.0		42.0		22.0	
Plant Hours Connected to Load	8,902		8,302		8,739		6,521	
Planned Ultimate Capacity (MW)	18.0		11.0		43.0		21.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	0		0		0		26	
Structures and Improvements	400		712		718		1,779	
Reservoirs, Dams, and Waterways	3,522		3,035		5,198		5,711	
Equipment	781		743		1,668		1,821	
Roads, Railroads, and Bridges	4		0		58		178	
Total	4,710		4,490		7,643		9,515	
Cost per kW of Installed Capacity(dollars)	262		408		178		453	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	0	0.00	0	0.00	0	0.00	89	1.38
Water for Power	5	.06	3	.05	11	.05	6	.09
Hydraulic Expenses	7	.09	16	.27	8	.04	153	2.38
Electric Expenses	16	.20	22	.36	26	.13	178	2.78
Miscellaneous Hydraulic Power Expenses	2	.03	1	.02	14	.07	87	1.36
Rents	9	.11	15	.26	28	.13	1	.01
Maintenance Expenses								
Maintenance Supervision and Engineering	0	.00	0	.00	0	.00	13	.20
Maintenance of Structures	1	.01	1	.01	0	.00	3	.04
Maintenance of Reservoirs, Dams, and Waterways	1	.01	5	.08	1	.00	188	2.93
Maintenance of Electric Plant	14	.17	41	.70	68	.32	36	.56
Maintenance of Miscellaneous Hydraulic Plant	1	.02	5	.09	0	.00	22	.34
Total, Exclusive of Pumping	57	.70	108	1.84	155	.74	776	12.08
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	57	.70	108	1.84	155	.74	776	12.08
Hydraulic Data								
Drainage Area (square miles)	337		420		337		285	
Area of Pond at Normal Full-Pond Level (acres)	102		22		102		160	
Pondage from Maximum Draw-Down (acre-feet)	1,420		710		1,420		970	
Gross Head (feet)	179.00		114.00		448.00		326.00	
Flow at Full Station Load (cfs per kW)	.0633		.1320		.0325		.0610	
Average Number of Employees	[1] NR		[1] NR		NR		20	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1951		1952		1950		1912	

[1] Included in Clearwater No. 1.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Portland General Electric Co							
Name of Plant	Faraday		North Fork		Oak Grove		Pelton	
Post Office	Estacada, OR		Estacada, OR		Three Links, OR		Madras, OR	
Location of Plant (County and State)	Clackamas OR		Clackamas OR		Clackamas OR		Jefferson OR	
River	Clackamas		Clackamas		Clackamas		Deschutes	
Region and Power Supply Area	VII-44		VII-44		VII-44		VII-44	
Licensed Project No.	02195		02195		00135		02030	
General Operating Characteristics								
Installed Generating Capacity (MW)	34.5		38.4		51.0		97.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	130.3		146.5		197.3		416.3	
Plant Factor Based on Nameplate Rating (percent)	43		44		44		49	
Net Peak Demand on Plant - 60 Minutes (MW)	44.0		54.0		44.0		107.0	
Net Plant Capability								
Winter Capability (MW)	43.0		54.0		45.0		108.0	
Summer Capability (MW)	43.0		54.0		45.0		108.0	
Plant Hours Connected to Load	8,760		8,614		8,712		6,951	
Planned Ultimate Capacity (MW)	34.5		38.4		51.0		108.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	33		377		9		238	
Structures and Improvements	1,457		2,102		2,629		2,856	
Reservoirs, Dams, and Waterways	8,373		14,483		13,994		11,983	
Equipment	2,884		3,141		1,876		5,411	
Roads, Railroads, and Bridges	415		99		2,479		648	
Total	13,163		20,203		20,987		21,137	
Cost per kW of Installed Capacity(dollars)	382		526		412		217	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	39	0.30	35	0.24	137	0.69	54	0.13
Water for Power	12	.09	12	.08	17	.09	29	.07
Hydraulic Expenses	41	.32	287	1.96	94	.48	285	.69
Electric Expenses	206	1.59	90	.61	365	1.85	189	.46
Miscellaneous Hydraulic Power Expenses	68	.52	39	.27	158	.79	76	.18
Rents	0	.00	2	.01	26	.13	1,154	2.77
Maintenance Expenses								
Maintenance Supervision and Engineering	14	.11	4	.03	23	.12	9	.02
Maintenance of Structures	7	.06	0	.00	25	.13	5	.01
Maintenance of Reservoirs, Dams, and Waterways	46	.35	1	.01	-7	.00	2	.00
Maintenance of Electric Plant	42	.32	30	.20	55	.28	50	.12
Maintenance of Miscellaneous Hydraulic Plant	27	.21	46	.31	29	.15	53	.13
Total, Exclusive of Pumping	504	3.87	546	3.73	920	4.66	1,906	4.58
Cost of Pumping Energy	0	.00		.00	0	.00	0	.00
Total Production Expenses	504	3.87	546	3.73	920	4.66	1,906	4.58
Hydraulic Data								
Drainage Area (square miles)	665		665		131		7,800	
Area of Pond at Normal Full-Pond Level (acres)	70		375		22		542	
Pondage from Maximum Draw-Down (acre-feet)	550		5,994		130		4,100	
Gross Head (feet)	130.00		132.00		878.00		151.00	
Flow at Full Station Load (cfs per kW)	.1200		.1050		.0160		.0960	
Average Number of Employees	23		1		19		9	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1907		1958		1924		1957	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Portland General Electric Co						U.S. Army Corps of Engineers	
Name of Plant	River Mill		Round Butte		T W Sullivan [1]		Bonneville Dam	
Post Office	Estacada, OR		Madras, OR		West Linn, OR			
Location of Plant (County and State)	Clackamas OR		Jefferson OR		Clackamas OR		Skamania OR	
River	Clackamas		Deschutes		Willamette		Columbia River	
Region and Power Supply Area	VII-44		VII-44		VII-44		VII-44	
Licensed Project No.	02195		02030		02233			
	General Operating Characteristics							
Installed Generating Capacity (MW)	19.1		247.0		15.4		1,076.4	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	79.9		961.2		90.1		5,105.8	
Plant Factor Based on Nameplate Rating (percent)	48		44		67		54	
Net Peak Demand on Plant - 60 Minutes (MW)	23.0		290.0		17.0		1,224.7	
Net Plant Capability								
Winter Capability (MW)	23.0		300.0		16.0		1,212.0	
Summer Capability (MW)	23.0		300.0		16.0		1,212.0	
Plant Hours Connected to Load	8,760		6,835		8,659		8,760	
Planned Ultimate Capacity (MW)	19.1		247.1		15.4		-	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	33		3,349		631		99,940	
Structures and Improvements	905		5,331		821		347,945	
Reservoirs, Dams, and Waterways	3,093		38,716		3,539		200,191	
Equipment	1,039		10,290		2,521		129,804	
Roads, Railroads, and Bridges	60		912		0		239	
Total	5,131		58,598		7,513		778,118	
Cost per kW of Installed Capacity(dollars)	269		237		486		723	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	41	0.51	65	0.07	34	0.38	954	0.19
Water for Power	7	.09	74	.08	67	.75	0	.00
Hydraulic Expenses	30	.37	76	.08	44	.49	1	.00
Electric Expenses	151	1.89	111	.12	31	.35	944	.18
Miscellaneous Hydraulic Power Expenses	8	.10	105	.11	20	.23	144	.03
Rents	0	.00	5,490	5.71	0	.00	2,466	.48
Maintenance Expenses								
Maintenance Supervision and Engineering	3	.04	19	.02	9	.10	580	.11
Maintenance of Structures	7	.09	26	.03	18	.20	430	.08
Maintenance of Reservoirs, Dams, and Waterways	5	.06	1	.00	12	.14	0	.00
Maintenance of Electric Plant	32	.40	102	.11	67	.74	1,368	.27
Maintenance of Miscellaneous Hydraulic Plant	13	.17	62	.06	4	.05	83	.02
Total, Exclusive of Pumping	296	3.71	6,131	6.38	307	3.41	6,971	1.37
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	296	3.71	6,131	6.38	307	3.41	6,971	1.37
	Hydraulic Data							
Drainage Area (square miles)	677		7,600		10,100		-	
Area of Pond at Normal Full-Pond Level (acres)	100		3,997		2,304		-	
Pondage from Maximum Draw-Down (acre-feet)	770		274,225		-		-	
Gross Head (feet)	32.00		369.00		40.00		-	
Flow at Full Station Load (cfs per kW)	.2000		.0440		.3630		-	
Average Number of Employees	3		19		1		90	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1911		1964		1924		1938	

[1] Jointly licensed with James River and Saurfit Newsprint Corporation.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	U.S. Army Corps of Engineers						Pennsylvania Electric Co	
Name of Plant	Dalles		John Day		McNary		Piney	
Post Office							Clarion, PA	
Location of Plant (County and State)	Klickitat	OR	Klickitat	OR	Benton	OR	Clarion	PA
River	Columbia		Columbia		Snake		Clarion	
Region and Power Supply Area	VII-42		VII-44		VII-44		I-05	
Licensed Project No.							00309	
General Operating Characteristics								
Installed Generating Capacity (MW)	1,806.8		2,160.0		980.0		28.8	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	7,609.1		9,284.5		5,822.6		77.0	
Plant Factor Based on Nameplate Rating (percent)	48		49		69		31	
Net Peak Demand on Plant - 60 Minutes (MW)	1,942.0		2,484.0		1,120.0		30.0	
Net Plant Capability								
Winter Capability (MW)	1,946.0		2,484.0		1,127.0		27.0	
Summer Capability (MW)	1,946.0		2,484.0		1,127.0		28.0	
Plant Hours Connected to Load	8,760		8,760		8,760		3,305	
Planned Ultimate Capacity (MW)	-		-		-		28.8	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	43,928		137,923		45,956		964	
Structures and Improvements	91,051		108,061		82,014		1,509	
Reservoirs, Dams, and Waterways	41,162		91,681		76,748		4,817	
Equipment	106,166		86,417		69,506		3,583	
Roads, Railroads, and Bridges	822		1,038		436		48	
Total	283,129		425,120		274,661		10,921	
Cost per kW of Installed Capacity(dollars)	157		197		280		379	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	64	0.01	74	0.01	786	0.13	67	0.86
Water for Power	0	.00	0	.00	0	.00	9	.12
Hydraulic Expenses	0	.00	0	.00	0	.00	31	.40
Electric Expenses	867	.11	856	.09	623	.11	304	3.95
Miscellaneous Hydraulic Power Expenses	148	.02	93	.01	91	.02	89	1.16
Rents	2,353	.31	3,803	.41	3,907	.67	6	.08
Maintenance Expenses								
Maintenance Supervision and Engineering	0	.00	2	.00	308	.05	25	.33
Maintenance of Structures	388	.05	279	.03	295	.05	33	.42
Maintenance of Reservoirs, Dams, and Waterways	0	.00	0	.00	0	.00	14	.18
Maintenance of Electric Plant	940	.12	808	.09	3,101	.52	-40	.00
Maintenance of Miscellaneous Hydraulic Plant	29	.00	30	.00	103	.02	40	.52
Total, Exclusive of Pumping	4,789	.63	5,946	.64	9,306	1.57	578	7.51
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	4,789	.63	5,946	.64	9,306	1.57	578	7.51
Hydraulic Data								
Drainage Area (square miles)	-		-		-		980	
Area of Pond at Normal Full-Pond Level (acres)	-		-		-		690	
Pondage from Maximum Draw-Down (acre-feet)	-		-		-		12,950	
Gross Head (feet)	-		-		-		83.00	
Flow at Full Station Load (cfs per kW)	-		-		-		.2080	
Average Number of Employees	84		55		70		16	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1957		1969		1954		1924	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant C[illegible]st and Production Expenses by Plant, 1987 (Conti[illegible]ued)

Name of Utility	Pennsylvania Electric Co		Pennsylvania Power & Light Co		Philadelphia Electric Co		Safe Harbor Water Power Corp	
Name of Plant	Seneca		Holtwood		Muddy Run		Safe Harbor	
Post Office	Kinzua, PA				Drumers, PA		Safe Harbor, PA	
Location of Plant (County and State)	Warren PA		Holtwood PA		Lancaster PA		Lancaster PA	
River	Allegheny		Susquehanna River		Susquehanna		Susquehanna	
Region and Power Supply Area	II-07		I-05		I-05		I-05	
Licensed Project No.	02280		01881		02355		01025	
General Operating Characteristics								
Installed Generating Capacity (MW)	422.0		108.0		800.0		417.5	
Pumping Energy - Pumped Storage (million kWh)	674.9		-		1,787.0		-	
Net Generation (million kWh)	475.0		588.1		1,250.9		954.6	
Plant Factor Based on Nameplate Rating (percent)	13		62		18		26	
Net Peak Demand on Plant - 60 Minutes (MW)	440.0		103.0		876.0		401.0	
Net Plant Capability								
Winter Capability (MW)	380.0		102.0		880.0		342.5	
Summer Capability (MW)	380.0		102.0		880.0		342.5	
Plant Hours Connected to Load	2,901		7,210		3,083		8,760	
Planned Ultimate Capacity (MW)	422.4		-		880.0		230.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	0		2,258		1,421		3,[illegible]90	
Structures and Improvements	1,982		2,888		14,562		28,751	
Reservoirs, Dams, and Waterways	37,468		10,826		34,292		14,772	
Equipment	23,090		16,091		32,910		104,551	
Roads, Railroads, and Bridges	0		92		998		156	
Total	62,539		32,155		84,183		151,509	
Cost per kW of Installed Capacity(dollars)	148		298		105		363	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	144	0.30	397	0.67	339	0.27	283	0.30
Water for Power	408	.86	196	.33	468	.37	0	.00
Hydraulic Expenses	170	.36	445	.76	1,051	.84	287	.30
Electric Expenses	134	.28	694	1.18	335	.27	751	.79
Miscellaneous Hydraulic Power Expenses	204	.43	509	.87	322	.26	1,229	1.29
Rents	5	.01	6	.01	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	49	.10	135	.23	133	.11	239	.25
Maintenance of Structures	30	.06	554	.94	154	.12	594	.62
Maintenance of Reservoirs, Dams, and Waterways	218	.46	1,145	1.95	309	.25	387	.41
Maintenance of Electric Plant	535	1.13	339	.58	1,519	1.21	357	.37
Maintenance of Miscellaneous Hydraulic Plant	12	.03	314	.53	144	.11	161	.17
Total, Exclusive of Pumping	1,908	4.02	4,734	8.10	4,773	3.82	4,288	4.49
Cost of Pumping Energy	11,266	.00	0	.00	37,134	.00	0	.00
Total Production Expenses	13,174	27.74	4,734	8.10	41,907	33.51	4,288	4.49
Hydraulic Data								
Drainage Area (square miles)	2,180		26,794		-		26,108	
Area of Pond at Normal Full-Pond Level (acres)	110		2,500		8,563		6,720	
Pondage from Maximum Draw-Down (acre-feet)	6,394		19,000		70,737		9	
Gross Head (feet)	813.00		51.00		361.00		55.00	
Flow at Full Station Load (cfs per kW)	.7350		.3250		.3280		-	
Average Number of Employees	20		[1] NR		NR		123	
Type of Plant Operation	Conv/Pumped Storage				Pumped Storage		Conventional	
Initial Year of Plant Operation	1970		1900		1967		1931	

[1] Employees included with Holtwood.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Duke Power Co			
Name of Plant	Cedar Creek	Dearborn	Fishing Creek	Jocassee
Post Office	Heath Springs, SC	Great Falls, SC	Great Falls, SC	Salem, SC
Location of Plant (County and State)	Lancaster SC	Chester SC	Chester SC	Pickens SC
River	Catawba	Catawba	Catawba	Keowee
Region and Power Supply Area	III-21	III-21	III-21	III-21
Licensed Project No.	02232	02232	02232	02503
General Operating Characteristics				
Installed Generating Capacity (MW)	45.0	45.0	36.7	610.0
Pumping Energy - Pumped Storage (million kWh)	-	-	-	1,475.9
Net Generation (million kWh)	148.8	127.2	166.3	1,169.2
Plant Factor Based on Nameplate Rating (percent)	38	32	52	22
Net Peak Demand on Plant - 60 Minutes (MW)	41.0	40.0	49.0	688.0
Net Plant Capability				
Winter Capability (MW)	38.5	34.7	41.1	610.0
Summer Capability (MW)	38.5	34.7	41.1	610.0
Plant Hours Connected to Load	7,775	7,834	7,725	2,751
Planned Ultimate Capacity (MW)	45.0	45.0	36.7	610.0
Historical Plant Cost (thousand dollars)				
Land and Land Rights	0	0	270	4,978
Structures and Improvements	264	150	203	14,986
Reservoirs, Dams, and Waterways	1,084	807	3,143	49,077
Equipment	1,628	542	662	34,601
Roads, Railroads, and Bridges	0	0	0	416
Total	2,975	1,500	4,278	104,058
Cost per kW of Installed Capacity(dollars)	66	33	117	171

Power Production Expenses	Cedar Creek $1,000	Cedar Creek Mills/kWh	Dearborn $1,000	Dearborn Mills/kWh	Fishing Creek $1,000	Fishing Creek Mills/kWh	Jocassee $1,000	Jocassee Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	0	0.00	0	0.00	0	0.00	49	0.04
Water for Power	0	.00	0	.00	0	.00	0	.00
Hydraulic Expenses	13	.09	44	.35	15	.09	79	.07
Electric Expenses	309	2.08	231	1.81	328	1.97	670	.57
Miscellaneous Hydraulic Power Expenses	19	.13	5	.04	34	.20	200	.17
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	6	.04	8	.06	17	.10	44	.04
Maintenance of Structures	0	.00	20	.16	33	.20	62	.05
Maintenance of Reservoirs, Dams, and Waterways	7	.05	8	.06	7	.04	411	.35
Maintenance of Electric Plant	38	.25	543	4.27	58	.35	434	.37
Maintenance of Miscellaneous Hydraulic Plant	-1	.00	-21	.00	1	.01	4	.00
Total, Exclusive of Pumping	391	2.60	838	6.60	492	3.00	1,954	1.67
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	391	2.60	838	6.60	492	3.00	1,954	1.67

Hydraulic Data	Cedar Creek	Dearborn	Fishing Creek	Jocassee
Drainage Area (square miles)	4,470	4,165	3,885	148
Area of Pond at Normal Full-Pond Level (acres)	800	450	3,370	310
Pondage from Maximum Draw-Down (acre-feet)	2	5	37,422	30
Gross Head (feet)	57.00	69.00	58.00	309.00
Flow at Full Station Load (cfs per kW)	.2500	.1950	.2510	-
Average Number of Employees	9	13	9	22
Type of Plant Operation	Conventional	Conventional	Conventional	Conv/Pumped Storage
Initial Year of Plant Operation	1926	1923	1916	1973

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Duke Power Co	Duke Power Co	Lockhart Power Co	South Carolina Electric & Gas Co
Name of Plant	**Wateree**	**Wylie**	**Lockhart**	**Fairfield**
Post Office	Ridgeway, SC	Fort Mills, SC	Lockhart, SC	Parr Shoals, SC
Location of Plant (County and State)	Kershaw SC	York SC	Union SC	Fairfield SC
River	Catawba	Catawba	Broad River	Broad
Region and Power Supply Area	III-21	III-21	III-21	III-21
Licensed Project No.	02232	02232		01894
General Operating Characteristics				
Installed Generating Capacity (MW)	56.0	60.0	12.3	511.0
Pumping Energy - Pumped Storage (million kWh)	-	-	-	525.1
Net Generation (million kWh)	242.1	149.4	75.1	363.8
Plant Factor Based on Nameplate Rating (percent)	49	28	70	8
Net Peak Demand on Plant - 60 Minutes (MW)	66.0	50.0	64.0	457.0
Net Plant Capability				
Winter Capability (MW)	69.6	52.6	15.0	512.0
Summer Capability (MW)	69.6	52.6	15.0	512.0
Plant Hours Connected to Load	7,716	8,752	8,756	2,956
Planned Ultimate Capacity (MW)	56.0	60.0	12.3	511.2
Historical Plant Cost (thousand dollars)				
Land and Land Rights	472	2,288	219	22,140
Structures and Improvements	2,595	694	104	34,748
Reservoirs, Dams, and Waterways	2,601	3,382	1,958	75,575
Equipment	3,454	1,204	763	60,217
Roads, Railroads, and Bridges	0	0	6	1,326
Total	9,122	7,568	3,050	194,006
Cost per kW of Installed Capacity(dollars)	163	126	248	380

Power Production Expenses	Wateree $1,000	Wateree Mills/kWh	Wylie $1,000	Wylie Mills/kWh	Lockhart $1,000	Lockhart Mills/kWh	Fairfield $1,000	Fairfield Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	0	0.00	0	0.00	30	0.40	201	0.55
Water for Power	0	.00	0	.00	0	.00	0	.00
Hydraulic Expenses	63	.26	81	.54	19	.25	155	.43
Electric Expenses	350	1.45	358	2.40	190	2.53	414	1.14
Miscellaneous Hydraulic Power Expenses	43	.18	27	.18	20	.27	111	.30
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	14	.06	8	.06	33	.45	77	.21
Maintenance of Structures	45	.18	3	.02	12	.16	11	.03
Maintenance of Reservoirs, Dams, and Waterways	32	.13	64	.43	56	.75	162	.45
Maintenance of Electric Plant	730	3.01	295	1.98	50	.66	759	2.09
Maintenance of Miscellaneous Hydraulic Plant	35	.14	21	.14	10	.13	89	.24
Total, Exclusive of Pumping	1,311	5.40	857	5.70	421	5.61	1,979	5.44
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	1,311	5.40	857	5.70	421	5.61	1,979	5.44

Hydraulic Data	Wateree	Wylie	Lockhart	Fairfield
Drainage Area (square miles)	5,000	3,080	2,790	-0
Area of Pond at Normal Full-Pond Level (acres)	13,710	12,455	300	6,664
Pondage from Maximum Draw-Down (acre-feet)	175,080	150,195	4	4
Gross Head (feet)	77.00	68.00	52.00	169.00
Flow at Full Station Load (cfs per kW)	.1910	.2250	-	-
Average Number of Employees	11	10	NR	300
Type of Plant Operation	Conventional	Conventional	Conventional	Pumped Storage
Initial Year of Plant Operation	1919	1925	1921	1978

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	South Carolina Electric & Gas Co						South Carolina Pub Serv Auth	
Name of Plant	Parr Hydro		Saluda Hydro		Stevens Creek Hydro		Jefferies	
Post Office			Irmo, SC		Martinez, GA			
Location of Plant (County and State)	Parr SC		Lexington SC		Edgefield SC		Moncks Corner SC	
River	Broad River		Saluda		Savannah		Santee Cooper River	
Region and Power Supply Area	III-21		III-21		III-21		III-21	
Licensed Project No.	01894		00516		02535		00199	
General Operating Characteristics								
Installed Generating Capacity (MW)	15.0		196.0		19.0		134.6	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	73.6		195.0		84.9		208.0	
Plant Factor Based on Nameplate Rating (percent)	56		11		51		18	
Net Peak Demand on Plant - 60 Minutes (MW)	14.0		206.0		18.0		130.0	
Net Plant Capability								
Winter Capability (MW)	14.0		206.0		9.0		44.0	
Summer Capability (MW)	14.0		206.0		9.0		44.0	
Plant Hours Connected to Load	8,711		4,775		8,754		8,394	
Planned Ultimate Capacity (MW)	15.0		196.0		19.0		132.6	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	526		5,156		456		8,525	
Structures and Improvements	1,216		3,289		1,587		4,413	
Reservoirs, Dams, and Waterways	1,802		14,880		1,707		43,271	
Equipment	942		7,383		1,274		8,614	
Roads, Railroads, and Bridges	22		158		0		153	
Total	4,308		30,865		5,024		64,976	
Cost per kW of Installed Capacity(dollars)	287		156		264		483	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	42	0.57	89	0.46	74	0.87	56	0.27
Water for Power	0	.00	0	.00	66	.78	0	.00
Hydraulic Expenses	16	.22	379	1.94	108	1.27	780	3.75
Electric Expenses	172	2.34	33	.17	77	.91	162	.78
Miscellaneous Hydraulic Power Expenses	6	.08	17	.09	31	.37	38	.18
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	38	.52	70	.36	14	.17	180	.87
Maintenance of Structures	2	.02	15	.08	4	.05	193	.93
Maintenance of Reservoirs, Dams, and Waterways	-5	.00	90	.46	8	.10	855	4.11
Maintenance of Electric Plant	216	2.94	276	1.41	144	1.69	181	.87
Maintenance of Miscellaneous Hydraulic Plant	72	.98	25	.13	20	.24	140	.67
Total, Exclusive of Pumping	559	7.60	994	5.10	547	6.40	2,585	12.43
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	559	7.60	994	5.10	547	6.40	2,585	12.43
Hydraulic Data								
Drainage Area (square miles)	4,550		2,400		7,260		15,000	
Area of Pond at Normal Full-Pond Level (acres)	2,925		51,000		4,300		60,000	
Pondage from Maximum Draw-Down (acre-feet)	12		4		4		650,000	
Gross Head (feet)	35.00		180.00		29.00		70.00	
Flow at Full Station Load (cfs per kW)	.4200		.0670		.5600		.0021	
Average Number of Employees	NR		5		11		2	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1914		1930		1913		1942	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	U.S. Army Corps of Engineers						Tapoco Inc	
Name of Plant	Big Bend		Fort Randall		Oahe		Calderwood	
Post Office Location of Plant (County and State) River Region and Power Supply Area Licensed Project No.	Buffalo SD Missouri River VI-26		Charles Mix SD Missouri River VI-26		Hughes SD Missouri River VI-26		Calderwood, TN Blount TN Little Tennessee III-20 02169	
	General Operating Characteristics							
Installed Generating Capacity (MW)	468.0		320.0		700.0		121.5	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	1,036.8		1,957.3		2,929.0		474.4	
Plant Factor Based on Nameplate Rating (percent)	25		70		48		45	
Net Peak Demand on Plant - 60 Minutes (MW)	486.0		343.0		744.0		119.0	
Net Plant Capability								
Winter Capability (MW)	468.0		368.0		784.0		114.0	
Summer Capability (MW)	468.0		368.0		784.0		114.0	
Plant Hours Connected to Load	NR		NR		NR		5,985	
Planned Ultimate Capacity (MW)	-		-		-		121.5	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	13,628		13,653		32,579		55	
Structures and Improvements	40,709		28,544		25,387		983	
Reservoirs, Dams, and Waterways	26,508		67,431		109,885		5,351	
Equipment	26,139		24,554		31,608		2,047	
Roads, Railroads, and Bridges	2,691		314		1,306		46	
Total	109,675		134,495		200,765		8,482	
Cost per kW of Installed Capacity(dollars)	234		420		287		70	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	416	0.40	129	0.07	389	0.13	34	0.07
Water for Power	0	.00	0	.00	0	.00	0	.00
Hydraulic Expenses	0	.00	0	.00	114	.04	19	.04
Electric Expenses	0	.00	653	.33	490	.17	355	.75
Miscellaneous Hydraulic Power Expenses	73	.07	53	.03	76	.03	89	.19
Rents	1,101	1.06	694	.35	880	.30	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	345	.33	481	.25	366	.13	65	.14
Maintenance of Structures	96	.09	952	49	272	.09	77	.16
Maintenance of Reservoirs, Dams, and Waterways	108	.10	-83	00	111	.04	114	.24
Maintenance of Electric Plant	639	.62	626	.32	341	.12	167	.35
Maintenance of Miscellaneous Hydraulic Plant	60	.06	9	.00	4	.00	24	.05
Total, Exclusive of Pumping	3,013	2.91	3,515	1.80	3,042	1.04	944	2.00
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	3,013	2.91	3,515	1.80	3,042	1.04	944	2.00
	Hydraulic Data							
Drainage Area (square miles)	249,330		263,480		243,490		1,856	
Area of Pond at Normal Full-Pond Level (acres)	60,000		95,000		359		536	
Pondage from Maximum Draw-Down (acre-feet)	7		45		77		1,567	
Gross Head (feet)	68.00		115.00		189.00		217.00	
Flow at Full Station Load (cfs per kW)	-		-		-		.0671	
Average Number of Employees	24		25		26		55	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1964		1954		1962		1930	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Tapoco Inc	Tennessee Valley Authority		Lower Colorado River Authority
Name of Plant	Chilhowee	Pickwick	Raccoon Mountain	Marshall Ford
Post Office	Tallahassee, TN		Chattanooga, TN	Austin, TX
Location of Plant (County and State)	Blount TN	Hardin TN	Marion TN	Travis TX
River	Little Tennessee	Tennessee River	Tennessee	Colorado
Region and Power Supply Area	III-20	III-22	III-20	V-38
Licensed Project No.	02169			
General Operating Characteristics				
Installed Generating Capacity (MW)	50.0	240.2	1,530.0	67.5
Pumping Energy - Pumped Storage (million kWh)	-	-	-2,206.8	-
Net Generation (million kWh)	141.7	1,131.0	1,726.8	364.2
Plant Factor Based on Nameplate Rating (percent)	32	54	13	62
Net Peak Demand on Plant - 60 Minutes (MW)	52.0	253.0	1,602.0	95.0
Net Plant Capability				
Winter Capability (MW)	53.1	235.2	1,532.0	83.7
Summer Capability (MW)	53.1	235.2	1,532.0	83.7
Plant Hours Connected to Load	5,198	8,760	8,760	NR
Planned Ultimate Capacity (MW)	50.0	-	1,530.0	67.5
Historical Plant Cost (thousand dollars)				
Land and Land Rights	2,234	0	3,921	2,099
Structures and Improvements	469	8,944	72,716	483
Reservoirs, Dams, and Waterways	5,339	0	121,152	23,394
Equipment	3,632	15,761	87,571	5,715
Roads, Railroads, and Bridges	33	0	2,096	78
Total	11,707	24,705	287,456	31,769
Cost per kW of Installed Capacity(dollars)	234	103	188	471

Power Production Expenses	Chilhowee $1,000	Chilhowee Mills/kWh	Pickwick $1,000	Pickwick Mills/kWh	Raccoon Mountain $1,000	Raccoon Mountain Mills/kWh	Marshall Ford $1,000	Marshall Ford Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	18	0.12	135	0.12	490	0.28	20	0.05
Water for Power	0	.00	0	.00	0	.00	0	.00
Hydraulic Expenses	2	.02	7	.01	0	.00	1	.00
Electric Expenses	90	.63	291	.26	565	.33	157	.43
Miscellaneous Hydraulic Power Expenses	47	.33	191	.17	971	.56	9	.02
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	40	.29	46	.04	103	.06	15	.04
Maintenance of Structures	15	.11	36	.03	137	.08	11	.03
Maintenance of Reservoirs, Dams, and Waterways	23	.16	65	.06	81	.05	181	.50
Maintenance of Electric Plant	73	.51	154	.14	1,302	.75	154	.42
Maintenance of Miscellaneous Hydraulic Plant	20	.14	92	.08	189	.11	8	.02
Total, Exclusive of Pumping	327	2.30	1,016	.90	3,838	2.22	556	1.53
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	327	2.30	1,016	.90	3,838	2.22	556	1.53

Hydraulic Data	Chilhowee	Pickwick	Raccoon Mountain	Marshall Ford
Drainage Area (square miles)	1,977	32,820	1	26,000
Area of Pond at Normal Full-Pond Level (acres)	1,747	43,100	538	18,900
Pondage from Maximum Draw-Down (acre-feet)	6,806	6	35,068	841,000
Gross Head (feet)	62.00	43.00	1,040.00	150.00
Flow at Full Station Load (cfs per kW)	.2190	-	-	.0870
Average Number of Employees	[1] NR	25	45	18
Type of Plant Operation	Conventional	Conventional	Pumped Storage	Conventional
Initial Year of Plant Operation	1957	1938	1979	1941

[1] Operated remotely from Calderwood when needed.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Utah Power & Light Co		New England Power Co					
Name of Plant	Cutler		Bellows Falls		Harriman		Vernon	
Post Office	Collinston, UT		Bellows Fls, VT		Readsboro, VT		Vernon, VT	
Location of Plant (County and State)	Box Elder	UT	Windham	VT	Windham	VT	Windham	VT
River	Bear		Connecticut		Deerfield		Connecticut	
Region and Power Supply Area	VII-41		I-02		I-02		I-02	
Licensed Project No.	02420		02210		02323		01904	
	General Operating Characteristics							
Installed Generating Capacity (MW)	30.0		41.0		34.0		24.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	72.2		234.6		121.4		131.3	
Plant Factor Based on Nameplate Rating (percent)	27		65		41		62	
Net Peak Demand on Plant - 60 Minutes (MW)	27.0		48.0		45.0		29.0	
Net Plant Capability								
Winter Capability (MW)	29.1		48.0		42.0		28.5	
Summer Capability (MW)	29.1		48.9		40.0		26.5	
Plant Hours Connected to Load	8,428		8,760		3,967		8,760	
Planned Ultimate Capacity (MW)	30.0		41.0		34.0		24.4	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	2,690		3,281		1,749		862	
Structures and Improvements	1,064		984		763		982	
Reservoirs, Dams, and Waterways	2,965		8,127		9,498		20,498	
Equipment	1,586		1,117		1,486		1,176	
Roads, Railroads, and Bridges	359		0		67		2	
Total	8,664		13,509		13,562		23,519	
Cost per kW of Installed Capacity(dollars)	289		329		399		980	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	20	0.28	44	0.19	35	0.29	80	0.61
Water for Power	0	.00	25	.11	0	.00	15	.12
Hydraulic Expenses	15	.21	75	.32	59	.49	44	.34
Electric Expenses	35	.49	197	.84	156	1.29	276	2.10
Miscellaneous Hydraulic Power Expenses	33	.46	67	.29	93	.77	96	.73
Rents	37	.51	1	.01	2	.02	1	.01
Maintenance Expenses								
Maintenance Supervision and Engineering	17	.23	50	.21	39	.32	47	.36
Maintenance of Structures	16	.23	12	.05	18	.15	24	.18
Maintenance of Reservoirs, Dams, and Waterways	28	.38	44	.19	17	.14	293	2.23
Maintenance of Electric Plant	63	.88	44	.19	70	.57	163	1.24
Maintenance of Miscellaneous Hydraulic Plant	8	.11	16	.07	58	.48	48	.37
Total, Exclusive of Pumping	274	3.80	576	2.46	549	4.52	1,088	8.28
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	274	3.80	576	2.46	549	4.52	1,088	8.28
	Hydraulic Data							
Drainage Area (square miles)	6,000		5,414		184		6,266	
Area of Pond at Normal Full-Pond Level (acres)	6,000		2,804		2,184		2,550	
Pondage from Maximum Draw-Down (acre-feet)	15,300		8,588		116,075		11,950	
Gross Head (feet)	127.00		62.00		390.00		340.00	
Flow at Full Station Load (cfs per kW)	.1100		.2200		.0400		.4700	
Average Number of Employees	5		18		38		25	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1927		1928		1924		1909	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	New England Power Co	Appalachian Power Co		Virginia Electric & Power Co
Name of Plant	Wilder	Clayton	Smith Mountain	Bath County
Post Office	Wilder, VT	Radford, VA	Rocky Mount, VA	
Location of Plant (County and State)	Windsor VT	Pulaski VA	Franklin VA	Richmond VA
River	Connecticut	New	Roanoke	
Region and Power Supply Area	I-02	II-10	II-10	III-18
Licensed Project No.	01892	00739	02210	
General Operating Characteristics				
Installed Generating Capacity (MW)	36.0	75.0	547.6	2,100.0
Pumping Energy - Pumped Storage (million kWh)	-	-	175.8	3,414.5
Net Generation (million kWh)	127.8	249.1	313.8	2,727.2
Plant Factor Based on Nameplate Rating (percent)	41	38	7	15
Net Peak Demand on Plant - 60 Minutes (MW)	42.0	84.0	54.6	2,792.0
Net Plant Capability				
Winter Capability (MW)	39.9	76.0	565.0	2,100.0
Summer Capability (MW)	39.9	76.0	565.0	2,100.0
Plant Hours Connected to Load	8,760	8,756	2,194	7,315
Planned Ultimate Capacity (MW)	34.2	75.0	547.5	-
Historical Plant Cost (thousand dollars)				
Land and Land Rights	3,891	1,612	6,048	11,281
Structures and Improvements	928	1,114	11,125	249,166
Reservoirs, Dams, and Waterways	15,766	9,519	23,306	1,028,481
Equipment	5,393	2,405	48,778	418,017
Roads, Railroads, and Bridges	0	32	928	69,576
Total	25,977	14,682	90,185	1,776,521
Cost per kW of Installed Capacity(dollars)	722	196	165	846

Power Production Expenses	Wilder $1,000	Wilder Mills/kWh	Clayton $1,000	Clayton Mills/kWh	Smith Mountain $1,000	Smith Mountain Mills/kWh	Bath County $1,000	Bath County Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	76	0.59	59	0.24	312	0.99	1,182	0.43
Water for Power	20	.15	0	.00	0	.00	387	.14
Hydraulic Expenses	37	.29	27	.11	65	.21	457	.17
Electric Expenses	180	1.41	13	.05	68	.22	1,461	.54
Miscellaneous Hydraulic Power Expenses	72	.57	127	.51	140	.45	2,138	.78
Rents	1	.01	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	61	.48	29	.11	142	.45	848	.31
Maintenance of Structures	19	.15	62	.25	53	.17	128	.05
Maintenance of Reservoirs, Dams, and Waterways	54	.42	165	.66	79	.25	380	.14
Maintenance of Electric Plant	55	.43	164	.66	794	2.53	2,940	1.08
Maintenance of Miscellaneous Hydraulic Plant	20	.16	56	.22	178	.57	1,308	.48
Total, Exclusive of Pumping	596	4.66	700	2.81	1,831	5.84	11,228	4.12
Cost of Pumping Energy	0	.00	0	.00	2,679	.00	0	.00
Total Production Expenses	596	4.66	700	2.81	4,510	14.38	11,228	4.12

Hydraulic Data	Wilder	Clayton	Smith Mountain	Bath County
Drainage Area (square miles)	3,375	2,400	1,020	-
Area of Pond at Normal Full-Pond Level (acres)	3,100	4,472	20,600	272
Pondage from Maximum Draw-Down (acre-feet)	13,350	25,000	157,000	105
Gross Head (feet)	51.00	116.00	192.00	1,262.00
Flow at Full Station Load (cfs per kW)	.2900	.1120	-	-
Average Number of Employees	19	10	20	116
Type of Plant Operation	Conventional	Conventional	Conv/Pumped Storage	Pumped Storage
Initial Year of Plant Operation	1950	1939	1965	1985

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Pacific Power & Light Co			
Name of Plant	Merwin	Swift No 1	Swift No 2	Yale
Post Office	Ariel, WA	Cougar, WA	Cougar, WA	Amboy, WA
Location of Plant (County and State)	Clark WA	Skamania WA	Cowlitz WA	Clark WA
River	Lewis	Lewis	Lewis	Lewis
Region and Power Supply Area	VII-44	VII-44	VII-42	VII-44
Licensed Project No.	00935	02111	02213	02071
General Operating Characteristics				
Installed Generating Capacity (MW)	136.0	204.0	70.0	108.0
Pumping Energy - Pumped Storage (million kWh)	-	-	-	-
Net Generation (million kWh)	415.8	567.4	182.8	467.8
Plant Factor Based on Nameplate Rating (percent)	35	32	30	49
Net Peak Demand on Plant - 60 Minutes (MW)	152.0	220.0	78.0	120.0
Net Plant Capability				
Winter Capability (MW)	144.0	267.9	76.8	132.0
Summer Capability (MW)	135.0	204.0	72.0	108.0
Plant Hours Connected to Load	8,760	7,586	NR	8,234
Planned Ultimate Capacity (MW)	136.0	204.0	70.0	108.0
Historical Plant Cost (thousand dollars)				
Land and Land Rights	812	6,764	3,460	1,292
Structures and Improvements	2,397	3,688	2,671	3,192
Reservoirs, Dams, and Waterways	6,564	36,860	7,767	25,573
Equipment	5,789	8,801	5,266	6,019
Roads, Railroads, and Bridges	210	93	0	190
Total	15,771	56,206	19,163	36,266
Cost per kW of Installed Capacity(dollars)	116	276	274	336

Power Production Expenses	Merwin $1,000	Merwin Mills/kWh	Swift No 1 $1,000	Swift No 1 Mills/kWh	Swift No 2 $1,000	Swift No 2 Mills/kWh	Yale $1,000	Yale Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	6	0.01	9	0.02	4	0.02	11	0.02
Water for Power	3	.01	5	.01	4	.02	2	.01
Hydraulic Expenses	48	.11	25	.04	39	.21	66	.14
Electric Expenses	180	.43	144	.25	100	.55	74	.16
Miscellaneous Hydraulic Power Expenses	29	.07	9	.02	3	.02	18	.04
Rents	11	.03	33	.06	0	.00	16	.03
Maintenance Expenses								
Maintenance Supervision and Engineering	7	.02	0	.00	3	.01	11	.02
Maintenance of Structures	15	.04	9	.02	0	.00	4	.01
Maintenance of Reservoirs, Dams, and Waterways	15	.04	276	.49	1	.01	17	.04
Maintenance of Electric Plant	17	.04	71	.13	29	.16	43	.09
Maintenance of Miscellaneous Hydraulic Plant	93	.22	28	.05	0	.00	79	.17
Total, Exclusive of Pumping	424	1.02	609	1.07	183	1.00	340	.73
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	424	1.02	609	1.07	183	1.00	340	.73

Hydraulic Data	Merwin	Swift No 1	Swift No 2	Yale
Drainage Area (square miles)	731	481	481	600
Area of Pond at Normal Full-Pond Level (acres)	3,921	4,621	-	3,783
Pondage from Maximum Draw-Down (acre-feet)	245,552	448,995	-	189,529
Gross Head (feet)	185.00	396.00	130.00	250.00
Flow at Full Station Load (cfs per kW)	.0746	.0389	-	.0597
Average Number of Employees	[1] 24	[2] NR	[2] NR	[2] NR
Type of Plant Operation	Conventional	Conventional	Conventional	Conventional
Initial Year of Plant Operation	1931	1958	1959	1953

[1] Includes entire Lewis River Project.

[2] Included in Merwin.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Puget Sound Power & Light Co							
Name of Plant	Electron		Lower Baker		Snoqualmie		Upper Baker	
Post Office	Electron, WA		Concrete, Wa		Snoqualmie, WA		Concrete, WA	
Location of Plant (County and State)	Pierce WA		Skagit WA		King WA		Skagit WA	
River	Puyallup		Baker		Snoqualmie		Baker	
Region and Power Supply Area	VII-43		VII-43		VII-43		VII-43	
Licensed Project No.			02150		02493		02150	
	General Operating Characteristics							
Installed Generating Capacity (MW)	25.5		64.0		42.0		94.4	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	128.4		307.7		203.4		282.9	
Plant Factor Based on Nameplate Rating (percent)	57		55		55		34	
Net Peak Demand on Plant - 60 Minutes (MW)	NR		71.0		41.0		99.0	
Net Plant Capability								
Winter Capability (MW)	26.0		71.4		44.0		103.0	
Summer Capability (MW)	26.0		67.0		44.0		103.0	
Plant Hours Connected to Load	8,764		8,457		7,039		8,751	
Planned Ultimate Capacity (MW)	25.5		64.0		47.0		94.4	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	78		521		31		1,263	
Structures and Improvements	461		3,388		1,366		3,501	
Reservoirs, Dams, and Waterways	32,757		8,428		1,077		35,298	
Equipment	1,898		4,556		2,463		5,947	
Roads, Railroads, and Bridges	119		69		139		602	
Total	35,313		16,965		5,076		46,611	
Cost per kW of Installed Capacity(dollars)	1,385		265		121		494	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	110	0.85	45	0.15	142	0.70	48	0.17
Water for Power	1	.00	2	.01	1	.00	2	.01
Hydraulic Expenses	127	.99	94	.30	40	.20	93	.33
Electric Expenses	134	1.04	73	.24	94	.46	72	.25
Miscellaneous Hydraulic Power Expenses	89	.69	49	.16	68	.34	28	.10
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	38	.30	29	.10	57	.28	53	.19
Maintenance of Structures	23	.18	31	.10	38	.19	13	.05
Maintenance of Reservoirs, Dams, and Waterways	146	1.14	28	.09	84	.42	58	.21
Maintenance of Electric Plant	75	.58	36	.12	66	.32	61	.22
Maintenance of Miscellaneous Hydraulic Plant	35	.27	54	.18	104	.51	52	.18
Total, Exclusive of Pumping	778	6.06	441	1.43	695	3.42	480	1.70
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	778	6.06	441	1.43	695	3.42	480	1.70
	Hydraulic Data							
Drainage Area (square miles)	91		270		400		211	
Area of Pond at Normal Full-Pond Level (acres)	13		2,279		125		4,985	
Pondage from Maximum Draw-Down (acre-feet)	92		129,660		390		220,600	
Gross Head (feet)	874.00		254.00		271.00		281.00	
Flow at Full Station Load (cfs per kW)	.0167		.0570		.0568		.0490	
Average Number of Employees	21		7		11		8	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1904		1925		1898		1959	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Puget Sound Power & Light Co		PUD No 1 of Chelan County 1				PUD No 2 of Grant County	
Name of Plant	White River		Rock Island		Rocky Reach		Priest Rapids	
Post Office	Dieringer, Wa				Zena, WA			
Location of Plant (County and State)	Pierce WA		Chelan WA		Chelan WA		Grant WA	
River	White		Columbia River		Columbia		Columbia	
Region and Power Supply Area	VII-43		VII-42		VII-42		VII-43	
Licensed Project No.					02145			
General Operating Characteristics								
Installed Generating Capacity (MW)	70.0		623.7		1,213.2		788.5	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	198.6		2,393.2		5,506.4		4,752.7	
Plant Factor Based on Nameplate Rating (percent)	32		44		52		69	
Net Peak Demand on Plant - 60 Minutes (MW)	59.0		588.0		1,223.0		813.0	
Net Plant Capability								
Winter Capability (MW)	70.0		623.7		1,279.7		912.0	
Summer Capability (MW)	70.0		623.7		1,279.7		912.0	
Plant Hours Connected to Load	7,365		8,760		8,760		8,760	
Planned Ultimate Capacity (MW)	82.6		-		1,213.2		-	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	486		11,073		44,318		2,329	
Structures and Improvements	753		99,969		65,805		9,746	
Reservoirs, Dams, and Waterways	5,232		73,771		67,653		79,951	
Equipment	3,307		135,052		78,986		48,119	
Roads, Railroads, and Bridges	101		1,668		258		0	
Total	9,878		321,533		257,021		140,144	
Cost per kW of Installed Capacity(dollars)	141		516		212		178	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	60	0.30	566	0.24	446	0.08	288	0.06
Water for Power	1	.01	553	.23	977	.18	803	.17
Hydraulic Expenses	99	.50	541	.23	655	.12	1,032	.22
Electric Expenses	207	1.04	931	.39	398	.07	962	.20
Miscellaneous Hydraulic Power Expenses	89	.45	432	.18	872	.16	323	.07
Rents	0	.00	65	.03	7	.00	19	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	75	.38	220	.09	494	.09	536	.11
Maintenance of Structures	210	1.06	124	.05	79	.01	75	.02
Maintenance of Reservoirs, Dams, and Waterways	204	1.02	295	.12	230	.04	47	.01
Maintenance of Electric Plant	77	.39	867	.36	908	.16	2,096	.44
Maintenance of Miscellaneous Hydraulic Plant	103	.52	422	.18	253	.05	981	.21
Total, Exclusive of Pumping	1,124	5.66	5,014	2.13	5,319	1.02	7,164	1.50
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	1,124	5.66	5,014	2.13	5,319	1.02	7,164	1.50
Hydraulic Data								
Drainage Area (square miles)	424		95,500		94,000		95,500	
Area of Pond at Normal Full-Pond Level (acres)	2,404		3,320		10,300		7,000	
Pondage from Maximum Draw-Down (acre-feet)	41,711		4		35,000		6	
Gross Head (feet)	488.00		36.00		92.00		89.00	
Flow at Full Station Load (cfs per kW)	.0312		-		-		-	
Average Number of Employees	25		127		108		135	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1912		1931		1961		1961	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	PUD No 2 of Grant County		Seattle City of					
Name of Plant	Wanapum		Boundary		Cedar Falls		Diablo	
Post Office			Metaline Falls, WA		Cedar Falls, WA		Rockport, WA	
Location of Plant (County and State)	Grant WA		Pend Oreille WA		King WA		Whatcom WA	
River	Columbia		Pend Oreille		Cedar		Skagit	
Region and Power Supply Area	VII-42		VII-43		VII-43		VII-43	
Licensed Project No.			02144				00553	
General Operating Characteristics								
Installed Generating Capacity (MW)	838.4		1,033.6		20.0		122.5	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	4,770.3		3,130.1		62.7		784.1	
Plant Factor Based on Nameplate Rating (percent)	65		35		36		70	
Net Peak Demand on Plant - 60 Minutes (MW)	872.0		1,001.0		30.0		158.0	
Net Plant Capability								
Winter Capability (MW)	986.0		1,088.0		30.0		159.0	
Summer Capability (MW)	966.0		1,088.0		30.0		159.0	
Plant Hours Connected to Load	8,760		7,297		8,158		8,760	
Planned Ultimate Capacity (MW)	-		635.0		20.0		122.4	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	15,489		1,033		1		34	
Structures and Improvements	10,511		20,507		708		5,112	
Reservoirs, Dams, and Waterways	90,005		50,555		14,988		11,755	
Equipment	44,907		72,214		1,777		6,172	
Roads, Railroads, and Bridges	0		2,730		0		1,109	
Total	160,912		147,040		17,474		24,182	
Cost per kW of Installed Capacity(dollars)	192		142		874		197	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	286	0.06	13	0.00	2	0.03	72	0.10
Water for Power	753	.16	2,260	.72	1	.01	56	.07
Hydraulic Expenses	951	.20	49	.02	18	.28	29	.04
Electric Expenses	965	.20	213	.07	14	.23	91	.12
Miscellaneous Hydraulic Power Expenses	349	.07	292	.09	69	1.10	525	.70
Rents	27	.01	11	.00	0	.00	17	.02
Maintenance Expenses								
Maintenance Supervision and Engineering	518	.11	40	.01	8	.13	76	.10
Maintenance of Structures	62	.01	185	.06	17	.28	498	.66
Maintenance of Reservoirs, Dams, and Waterways	45	.01	53	.02	23	.36	42	.06
Maintenance of Electric Plant	1,973	.41	328	.10	191	3.05	255	.34
Maintenance of Miscellaneous Hydraulic Plant	767	.16	51	.02	3	.05	270	.36
Total, Exclusive of Pumping	6,695	1.40	3,496	1.12	345	5.51	1,931	2.56
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	6,695	1.40	3,496	1.12	345	5.51	1,931	2.56
Hydraulic Data								
Drainage Area (square miles)	9,070		25,200		79		1,102	
Area of Pond at Normal Full-Pond Level (acres)	13,800		1,668		1,920		910	
Pondage from Maximum Draw-Down (acre-feet)	12		43,000		60,000		61,000	
Gross Head (feet)	90.00		261.00		630.00		330.00	
Flow at Full Station Load (cfs per kW)	-		.0508		.0250		.0449	
Average Number of Employees	135		24		3		13	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1964		1967		1921		1936	

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

best copy available

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Seattle City of				Tacoma City of			
Name of Plant	Gorge		Ross Dam		Alder		Cushman No 1	
Post Office	Rockport, WA		Rockport, WA		Alder, WA		Hoodsport, WA	
Location of Plant (County and State)	Whatcom WA		Whatcom WA		Pierce WA		Mason WA	
River	Skagit		Skagit		Nisqually		N.F. Skokomish	
Region and Power Supply Area	VII-43		VII-43		VII-43		VII-43	
Licensed Project No.	00553		00553		01862		00460	
	General Operating Characteristics							
Installed Generating Capacity (MW)	170.6		360.0		50.0		43.2	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	895.1		710.0		179.7		99.1	
Plant Factor Based on Nameplate Rating (percent)	60		23		41		26	
Net Peak Demand on Plant - 60 Minutes (MW)	174.0		368.0		49.0		38.0	
Net Plant Capability								
Winter Capability (MW)	175.0		450.0		52.0		47.0	
Summer Capability (MW)	175.0		275.0		44.9		29.6	
Plant Hours Connected to Load	8,760		6,786		8,730		6,026	
Planned Ultimate Capacity (MW)	138.0		360.0		50.0		43.2	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	113		44		2,815		522	
Structures and Improvements	8,512		13,649		2,037		769	
Reservoirs, Dams, and Waterways	37,208		45,551		9,021		3,073	
Equipment	18,672		19,455		1,896		1,335	
Roads, Railroads, and Bridges	1,109		1,109		129		55	
Total	65,614		79,808		15,899		5,754	
Cost per kW of Installed Capacity(dollars)	385		222		318		133	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	73	0.08	77	0.11	40	0.22	34	0.34
Water for Power	67	.07	164	.23	1	.01	1	.01
Hydraulic Expenses	13	.01	72	.10	108	.60	64	.65
Electric Expenses	94	.10	87	.12	205	1.14	197	1.99
Miscellaneous Hydraulic Power Expenses	540	.60	556	.78	12	.07	39	.40
Rents	10	.01	158	.22	1	.01	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	76	.09	79	.11	28	.16	31	.32
Maintenance of Structures	500	.56	463	.65	7	.04	19	.19
Maintenance of Reservoirs, Dams, and Waterways	74	.08	75	.11	39	.22	105	1.06
Maintenance of Electric Plant	210	.23	765	1.08	929	5.17	1,231	12.42
Maintenance of Miscellaneous Hydraulic Plant	259	.29	283	.40	23	.13	53	.54
Total, Exclusive of Pumping	1,917	2.14	2,780	3.92	1,395	7.76	1,774	17.90
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	1,917	2.14	2,780	3.92	1,395	7.76	1,774	17.90
	Hydraulic Data							
Drainage Area (square miles)	1,160		978		267		94	
Area of Pond at Normal Full-Pond Level (acres)	241		11,678		3,065		4,000	
Pondage from Maximum Draw-Down (acre-feet)	6,545		1,022,800		231,400		360,000	
Gross Head (feet)	380.00		395.00		265.00		255.00	
Flow at Full Station Load (cfs per kW)	.0420		.0409		-		.0672	
Average Number of Employees	12		12		11		10	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1924		1952		1945		1926	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Tacoma City of							
Name of Plant	Cushman No 2		La Grande		Mayfield		Mossyrock	
Post Office	Potlatch, WA		La Grande, WA		Silver Creek, WA		Mossyrock, WA	
Location of Plant (County and State)	Mason WA		Pierce WA		Lewis WA		Lewis WA	
River	N.F. Skokomish		Nisqually		Cowlitz		Cowlitz	
Region and Power Supply Area	VII-43		VII-43		VII-43		VII-43	
Licensed Project No.	00460		01862		02016		02016	
	General Operating Characteristics							
Installed Generating Capacity (MW)	81.0		64.0		162.0		300.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	200.1		264.4		519.7		730.6	
Plant Factor Based on Nameplate Rating (percent)	28		51		37		28	
Net Peak Demand on Plant - 60 Minutes (MW)	86.9		63.9		170.8		314.7	
Net Plant Capability								
Winter Capability (MW)	88.0		65.0		172.0		384.0	
Summer Capability (MW)	86.0		65.0		172.0		331.9	
Plant Hours Connected to Load	6,079		8,674		8,729		6,548	
Planned Ultimate Capacity (MW)	81.0		64.0		121.5		300.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	127		210		4,187		26,355	
Structures and Improvements	1,054		1,595		8,279		31,560	
Reservoirs, Dams, and Waterways	5,439		6,517		26,961		53,748	
Equipment	2,453		2,219		16,982		8,516	
Roads, Railroads, and Bridges	17		116		640		277	
Total	9,089		10,656		57,048		120,476	
Cost per kW of Installed Capacity(dollars)	112		167		352		402	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	33	0.17	48	0.17	52	0.10	140	0.19
Water for Power	1	.00	1	.00	3	.01	6	.01
Hydraulic Expenses	12	.06	11	.04	37	.07	2,206	3.02
Electric Expenses	188	.94	227	.80	213	.41	105	.14
Miscellaneous Hydraulic Power Expenses	81	.40	107	.38	182	.35	40	.06
Rents	0	.00	1	.00	1	.00	6	.01
Maintenance Expenses								
Maintenance Supervision and Engineering	31	.16	30	.10	26	.05	63	.09
Maintenance of Structures	14	.07	37	.13	31	.06	22	.03
Maintenance of Reservoirs, Dams, and Waterways	62	.31	36	.12	71	.14	79	.11
Maintenance of Electric Plant	203	1.02	378	1.33	314	.60	140	.20
Maintenance of Miscellaneous Hydraulic Plant	21	.10	58	.20	31	.06	241	.33
Total, Exclusive of Pumping	646	3.23	933	3.28	962	1.85	3,057	4.18
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	646	3.23	933	3.28	962	1.85	3,057	4.18
	Hydraulic Data							
Drainage Area (square miles)	100		292		1,400		1,170	
Area of Pond at Normal Full-Pond Level (acres)	150		45		2,200		11,335	
Pondage from Maximum Draw-Down (acre-feet)	2,113		2,700		21,378		1,297,390	
Gross Head (feet)	480.00		419.00		187.00		339.00	
Flow at Full Station Load (cfs per kW)	.0304		-		.0750		.0410	
Average Number of Employees	12		11		25		5	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1930		1912		1963		1968	

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	U.S. Army Corps of Engineers							
Name of Plant	Chief Joseph		Ice Harbor		Little Goose		Lower Granite	
Post Office Location of Plant (County and State) River Region and Power Supply Area Licensed Project No.	Douglas WA Columbia VII-44		Walla Walla WA Snake River VII-44		Columbia WA Snake VII-44		Whitman WA Columbia and Snake VII-44	
	General Operating Characteristics							
Installed Generating Capacity (MW)	2,457.4		603.0		810.0		810.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	10,021.0		1,972.6		2,046.6		2,048.7	
Plant Factor Based on Nameplate Rating (percent)	47		37		29		29	
Net Peak Demand on Plant - 60 Minutes (MW)	2,055.0		693.0		9,301.0		930.0	
Net Plant Capability								
Winter Capability (MW)	2,337.0		693.0		932.0		-	
Summer Capability (MW)	2,337.0		693.0		932.0		-	
Plant Hours Connected to Load	8,760		8,760		8,760		8,760	
Planned Ultimate Capacity (MW)	-		-		-		-	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	14,966		21,767		33,212		66,051	
Structures and Improvements	124,874		41,483		62,058		76,258	
Reservoirs, Dams, and Waterways	225,620		31,771		48,331		94,541	
Equipment	157,405		37,511		51,921		60,136	
Roads, Railroads, and Bridges	3,838		478		3,322		5,914	
Total	526,703		133,010		198,845		322,899	
Cost per kW of Installed Capacity(dollars)	214		221		245		399	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	509	0.05	477	0.24	337	0.16	694	0.34
Water for Power	0	.00	0	.00	0	.00	0	.00
Hydraulic Expenses	1	.00	44	.02	92	.04	45	.02
Electric Expenses	942	.09	169	.09	158	.08	210	.10
Miscellaneous Hydraulic Power Expenses	93	.01	102	.05	26	.01	20	.01
Rents	3,246	.32	2,171	1.10	2,893	1.41	3,395	1.66
Maintenance Expenses								
Maintenance Supervision and Engineering	352	.04	145	.07	94	.05	286	.14
Maintenance of Structures	360	.04	70	.04	225	.11	120	.06
Maintenance of Reservoirs, Dams, and Waterways	0	.00	0	.00	2	.00	1	.00
Maintenance of Electric Plant	1,280	.13	405	.21	466	.23	435	.21
Maintenance of Miscellaneous Hydraulic Plant	84	.01	54	.03	40	.02	16	.01
Total, Exclusive of Pumping	6,866	.69	3,637	1.84	4,333	2.12	5,222	2.55
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	6,866	.69	3,637	1.84	4,333	2.12	5,222	2.55
	Hydraulic Data							
Drainage Area (square miles)	-		-		-		-	
Area of Pond at Normal Full-Pond Level (acres)	-		-		-		-	
Pondage from Maximum Draw-Down (acre-feet)	-		-		-		-	
Gross Head (feet)	-		-		-		-	
Flow at Full Station Load (cfs per kW)	-		-		-		-	
Average Number of Employees	88		51		26		32	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1956		1962		1970		1975	

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	U.S. Army Corps of Engineers		Washington Water Power Co					
Name of Plant	Lower Monumental		Little Falls		Long Lake		Nine Mile	
Post Office			Ford, WA		Reardon, WA		Nine Mile, WA	
Location of Plant (County and State)	Walla Walla WA		Lincoln WA		Lincoln WA		Spokane WA	
River	Columbia and Snake		Spokane		Spokane		Spokane	
Region and Power Supply Area	VII-44		VII-42		VII-42		VII-42	
Licensed Project No.			02532		02545		02545	
	General Operating Characteristics							
Installed Generating Capacity (MW)	810.0		32.0		70.0		12.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	1,996.1		168.9		370.9		85.7	
Plant Factor Based on Nameplate Rating (percent)	26		60		60		82	
Net Peak Demand on Plant - 60 Minutes (MW)	930.0		37.0		73.0		17.0	
Net Plant Capability								
Winter Capability (MW)	-		36.0		72.8		18.4	
Summer Capability (MW)	-		36.0		72.8		18.4	
Plant Hours Connected to Load	8,760		8,756		8,760		8,760	
Planned Ultimate Capacity (MW)	-		32.0		70.0		12.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	55,024		125		1,232		27	
Structures and Improvements	61,737		676		1,142		358	
Reservoirs, Dams, and Waterways	0		805		3,967		1,073	
Equipment	51,017		3,304		5,394		977	
Roads, Railroads, and Bridges	3,274		0		0		0	
Total	171,052		4,910		11,735		2,434	
Cost per kW of Installed Capacity(dollars)	211		153		168		203	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	444	0.22	21	0.13	23	0.06	0	0.00
Water for Power	0	.00	1	.00	6	.02	1	.01
Hydraulic Expenses	38	.02	0	.00	0	.00	1	.01
Electric Expenses	183	.09	144	.85	106	.28	199	2.32
Miscellaneous Hydraulic Power Expenses	30	.01	6	.04	42	.11	20	.23
Rents	1,896	.95	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	127	.06	4	.02	14	.04	3	.03
Maintenance of Structures	189	.09	4	.02	18	.05	9	.11
Maintenance of Reservoirs, Dams, and Waterways	0	.00	61	.36	75	.20	35	.40
Maintenance of Electric Plant	1,696	.85	39	.23	92	.25	42	.49
Maintenance of Miscellaneous Hydraulic Plant	21	.01	0	.00	3	.01	0	.00
Total, Exclusive of Pumping	4,624	2.32	281	1.66	379	1.02	309	3.60
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	4,624	2.32	281	1.66	379	1.02	309	3.60
	Hydraulic Data							
Drainage Area (square miles)	-		6,380		5,920		5,110	
Area of Pond at Normal Full-Pond Level (acres)	-		250		5,060		420	
Pondage from Maximum Draw-Down (acre-feet)	-		11		105,080		4,600	
Gross Head (feet)	-		76.00		171.00		65.00	
Flow at Full Station Load (cfs per kW)	-		.1940		.0850		.2700	
Average Number of Employees	20		3		5		6	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1968		1910		1915		1908	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Washington Water Power Co		West Penn Power Co		Northern States Power Co			
Name of Plant	Upper Falls		Lake Lynn		Chippewa Falls		Cornell	
Post Office	Spokane, WA		Lake Lynn, PA		Chippewa Falls, WI		Cornell, WI	
Location of Plant (County and State)	Spokane WA		Monongalia WV		Chippewa WI		Chippewa WI	
River	Spokane		Cheat		Chippewa		Chippewa	
Region and Power Supply Area	VII-42		II-10		IV-16		IV-16	
Licensed Project No.	02545		02459		02440		02639	
	General Operating Characteristics							
Installed Generating Capacity (MW)	10.0		51.0		21.6		30.9	
Pumping Energy - Pumped Storage (million kWh)	–		–		–		–	
Net Generation (million kWh)	68.7		108.6		42.0		48.7	
Plant Factor Based on Nameplate Rating (percent)	78		24		22		18	
Net Peak Demand on Plant - 60 Minutes (MW)	11.0		54.0		21.0		30.5	
Net Plant Capability								
Winter Capability (MW)	10.0		52.0		22.0		30.9	
Summer Capability (MW)	10.0		52.0		22.0		30.9	
Plant Hours Connected to Load	8,754		3,760		5,821		6,545	
Planned Ultimate Capacity (MW)	10.0		51.2		21.6		30.9	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	66		443		120		27	
Structures and Improvements	367		399		373		3,359	
Reservoirs, Dams, and Waterways	691		4,886		2,469		9,241	
Equipment	542		1,765		1,129		4,150	
Roads, Railroads, and Bridges	0		3		0		0	
Total	1,666		7,496		4,091		16,776	
Cost per kW of Installed Capacity(dollars)	167		147		189		543	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	8	0.12	80	0.74	32	0.77	31	0.64
Water for Power	0	.01	38	.35	70	1.68	91	1.86
Hydraulic Expenses	13	.19	62	.57	36	.85	19	.38
Electric Expenses	127	1.84	135	1.25	38	.89	17	.35
Miscellaneous Hydraulic Power Expenses	14	.20	71	.66	43	1.02	48	.99
Rents	0	.00	0	.00	0	.01	2	.03
Maintenance Expenses								
Maintenance Supervision and Engineering	0	.00	46	.42	32	.76	34	.69
Maintenance of Structures	1	.01	45	.41	8	.20	21	.42
Maintenance of Reservoirs, Dams, and Waterways	9	.13	45	.41	11	.26	379	7.77
Maintenance of Electric Plant	6	.08	34	.31	60	1.43	86	1.75
Maintenance of Miscellaneous Hydraulic Plant	1	.01	9	.08	13	.31	11	.23
Total, Exclusive of Pumping	178	2.59	565	5.21	344	8.20	737	15.11
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	178	2.59	565	5.21	344	8.20	737	15.11
	Hydraulic Data							
Drainage Area (square miles)	4,290		1,413		5,550		4,797	
Area of Pond at Normal Full-Pond Level (acres)	135		1,729		230		–	
Pondage from Maximum Draw-Down (acre-feet)	6		19,700		550		2	
Gross Head (feet)	65.00		82.00		30.00		36.00	
Flow at Full Station Load (cfs per kW)	2300		.1740		.5200		–	
Average Number of Employees	16		15		2		2	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1922		1926		1928		1976	

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Northern States Power Co							
Name of Plant	Holcombe		Jim Falls		St. Croix Falls		Wissota	
Post Office	Holcombe, WI		Jim Falls, WI		St. Croix Falls, WI		Wissota, WI	
Location of Plant (County and State)	Chippewa WI		Chippewa WI		Polk WI		Chippewa WI	
River	Chippewa		Chippewa		St. Croix		Chippewa	
Region and Power Supply Area	IV-16		IV-16		IV-16		IV-16	
Licensed Project No.	01982		02491					
	General Operating Characteristics							
Installed Generating Capacity (MW)	33.8		14.4		23.2		36.0	
Pumping Energy - Pumped Storage (million kWh)	-		-		-		-	
Net Generation (million kWh)	50.9		54.8		85.1		836.9	
Plant Factor Based on Nameplate Rating (percent)	17		43		42		265	
Net Peak Demand on Plant - 60 Minutes (MW)	34.9		12.2		23.2		36.8	
Net Plant Capability								
Winter Capability (MW)	33.3		11.4		22.0		36.4	
Summer Capability (MW)	33.3		11.4		22.0		36.4	
Plant Hours Connected to Load	3,501		8,760		8,459		8,748	
Planned Ultimate Capacity (MW)	33.8		14.4		23.2		36.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	230		843		95		353	
Structures and Improvements	440		1,083		531		509	
Reservoirs, Dams, and Waterways	6,815		1,405		1,186		3,382	
Equipment	2,699		1,772		1,686		1,586	
Roads, Railroads, and Bridges	0		0		0		0	
Total	10,185		5,103		3,499		5,863	
Cost per kW of Installed Capacity(dollars)	301		354		151		163	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	34	0.68	31	0.57	59	0.70	77	0.09
Water for Power	102	2.01	126	2.30	0	.00	127	.15
Hydraulic Expenses	49	.97	43	.78	64	.75	51	.06
Electric Expenses	40	.79	42	.77	64	.76	63	.08
Miscellaneous Hydraulic Power Expenses	57	1.11	38	.69	66	.78	76	.09
Rents	1	.01	3	.06	2	.02	1	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	36	.70	25	.45	57	.67	84	.10
Maintenance of Structures	10	.19	5	.10	3	.03	34	.04
Maintenance of Reservoirs, Dams, and Waterways	12	.24	5	.08	10	.12	676	.81
Maintenance of Electric Plant	112	2.20	25	.46	202	2.38	335	.40
Maintenance of Miscellaneous Hydraulic Plant	16	.32	3	.05	6	.07	10	.01
Total, Exclusive of Pumping	469	9.22	345	6.30	533	6.27	1,535	1.83
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	469	9.22	345	6.30	533	6.27	1,535	1.83
	Hydraulic Data							
Drainage Area (square miles)	4,700		4,891		5,950		5,548	
Area of Pond at Normal Full-Pond Level (acres)	4,270		1,000		840		7,000	
Pondage from Maximum Draw-Down (acre-feet)	31,700		3,500		3,000		88,000	
Gross Head (feet)	40.00		55.00		59.00		55.00	
Flow at Full Station Load (cfs per kW)	.3300		.3000		.2800		.2800	
Average Number of Employees	2		2		7		9	
Type of Plant Operation	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1950		1923		1910		1917	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 11. Hydroelectric Plant Cost and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Wisconsin Power & Light Co	Wisconsin Public Service Corp	Wisconsin River Power Co	
Name of Plant	Prairie Du Sac	Grandfather Falls	Castle Rock	Petenwell
Post Office	Prairie Du Sac, WI	Irma, WI	Adams, WI	Necedah, WI
Location of Plant (County and State)	Sauk WI	Lincoln WI	Adams WI	Adams WI
River	Wisconsin	Wisconsin	Wisconsin	Wisconsin
Region and Power Supply Area	IV-13	IV-13	IV-13	IV-13
Licensed Project No.		01966	01984	01984
	General Operating Characteristics			
Installed Generating Capacity (MW)	28.5	17.2	15.0	20.0
Pumping Energy - Pumped Storage (million kWh)	–	–	–	–
Net Generation (million kWh)	110.1	65.7	72.2	68.2
Plant Factor Based on Nameplate Rating (percent)	44	44	55	39
Net Peak Demand on Plant - 60 Minutes (MW)	27.0	NR	18.1	20.9
Net Plant Capability				
Winter Capability (MW)	30.0	17.2	17.5	20.0
Summer Capability (MW)	29.0	17.2	17.5	20.0
Plant Hours Connected to Load	8,760	8,760	8,760	8,760
Planned Ultimate Capacity (MW)	28.5	17.2	15.0	20.0
	Historical Plant Cost (thousand dollars)			
Land and Land Rights	811	385	1,580	1,924
Structures and Improvements	605	184	308	533
Reservoirs, Dams, and Waterways	2,948	4,290	5,811	7,422
Equipment	1,572	524	1,772	1,800
Roads, Railroads, and Bridges	0	7	15	18
Total	5,936	5,390	9,485	11,696
Cost per kW of Installed Capacity(dollars)	208	313	632	585

	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	54	0.49	6	0.10	25	0.34	33	0.49
Water for Power	111	1.01	186	2.83	101	1.40	163	2.40
Hydraulic Expenses	11	.10	11	.17	28	.38	15	.21
Electric Expenses	105	.96	14	.22	2	.03	28	.42
Miscellaneous Hydraulic Power Expenses	89	.81	28	.42	22	.30	46	.68
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	55	.50	22	.33	0	.00	0	.00
Maintenance of Structures	43	.39	11	.16	4	.05	8	.11
Maintenance of Reservoirs, Dams, and Waterways	271	2.46	48	.73	90	1.25	119	1.75
Maintenance of Electric Plant	90	.81	19	.29	106	1.47	60	.89
Maintenance of Miscellaneous Hydraulic Plant	35	.32	0	.00	6	.08	13	.19
Total, Exclusive of Pumping	864	7.85	345	5.25	383	5.30	486	7.10
Cost of Pumping Energy	0	.00	0	.00	0	.00	0	.00
Total Production Expenses	864	7.85	345	5.25	383	5.30	486	7.10

	Hydraulic Data			
Drainage Area (square miles)	9,003	2,293	6,800	5,860
Area of Pond at Normal Full-Pond Level (acres)	9,000	200	17,000	23,000
Pondage from Maximum Draw-Down (acre-feet)	36	1	77,000	98,000
Gross Head (feet)	40.00	95.00	30.00	42.00
Flow at Full Station Load (cfs per kW)	.4600	.1470	.4870	.3300
Average Number of Employees	13	1	NR	6
Type of Plant Operation	Conventional	Conventional	Conventional	Conventional
Initial Year of Plant Operation	1914	1938	1951	1950

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Fossil-Fueled Steam-Electric Plants

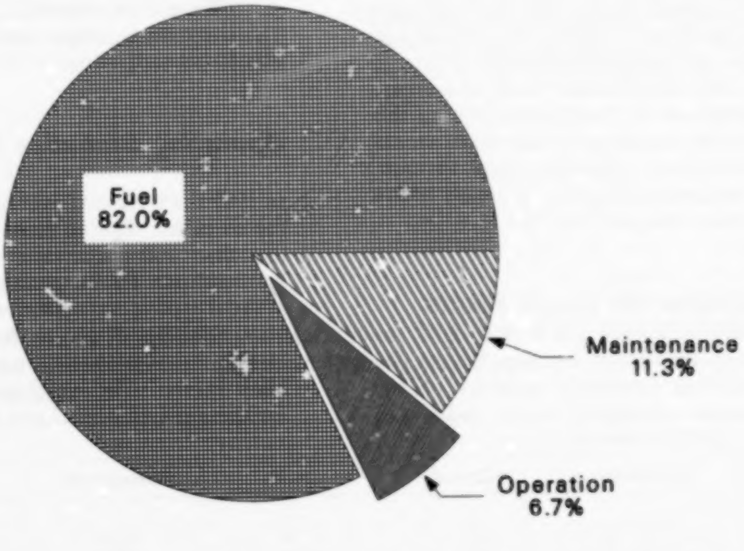
Georgia Power Company operates the Bowen Plant located in Barton County, Georgia.

Fossil-Fueled Steam-Electric Plants

This section presents summary statistics for 378 electric utility fossil-fueled steam-electric plants[4] including 309 plants with an installed nameplate capacity greater than or equal to 100 megawatts and 69 plants with an installed nameplate capacity less than 100 megawatts. Three plants which were part of the 1984 selection, did not report fuel nor generation data in 1987 and are not included in the summary statistics. These plants are: Owatonna, operated by the City of Owatonna (stand-by service), Weyco Energy Center, operated by the City of Eugene (out of service), and Austin operated by the City of Austin (retired), each with an installed nameplate capacity of less than 100 megawatts. These 3 plants are shown in Table 16. The 378 plants had a total net generation of 1,467,850 gigawatthours in 1987, which accounted for 80 percent of the total net generation of such electric utility plants. Nine of the 378 plants are steam-electric generating units that operate in combined-cycle with gas-turbine units. The entire plant data for these nine plants are contained in this section, because the gas-turbine portion of the plant cannot be separated from the steam portion.

The weighted (by generation) average production expenses, including operation, maintenance, and fuel, for the 378 fossil-fueled steam-electric plants for 1987 were 22.42 mills per kilowatthour. The average fuel cost component was 82 percent or 18.39 mills; operation expenses averaged 1.50 mills per kilowatthour; and maintenance expenses averaged 2.53 mills per kilowatthour. The components of plant production expenses in 1987 are shown in Figure 3. Summary statistics on production expenses are presented in Tables 12 and 13. Figure 4 shows these expenses, by energy source.

Figure 3. Components of Fossil-Fueled Steam-Electric Plant Weighted Average Production Expenses, 1987

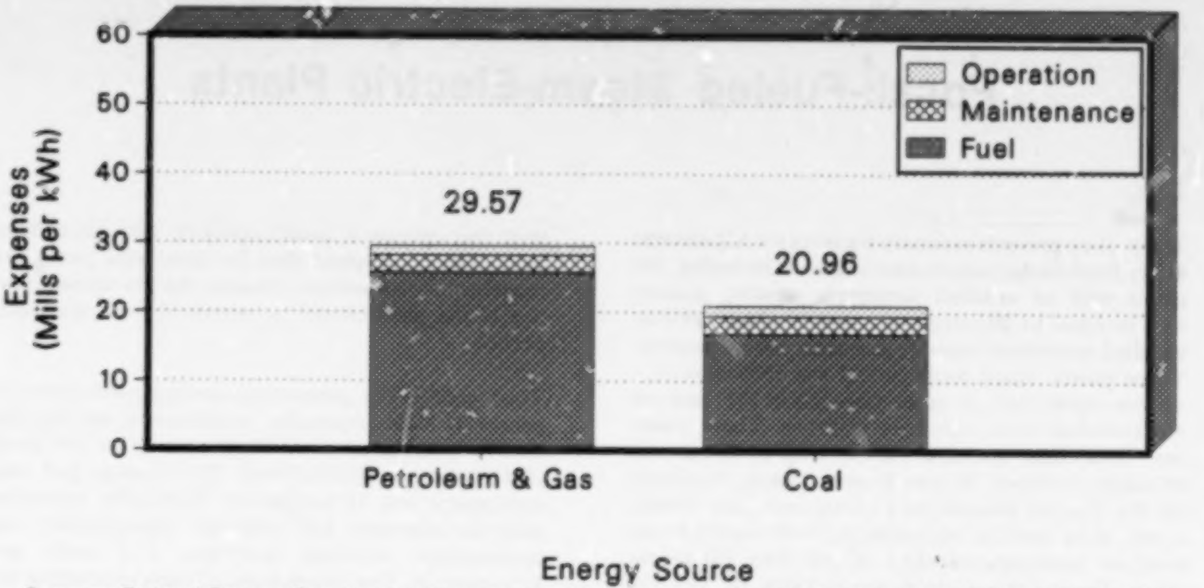


Source: Federal Energy Regulatory Commission, FERC Form 1, 'Annual Report of Major Electric Utilities, Licensees and Others,' and Energy Information Administration, Form EIA-412, 'Annual Report of Public Electric Utilities.'

---

[4] Includes the Kettle Falls and J.C. McNeil wood-fueled plants.

Figure 4. Fossil-Fueled Steam-Electric Plant Weighted Average Production Expenses, by Energy Source, 1987



Source: Federal Energy Regulatory Commission, FERC Form 1, 'Annual Report of Major Electric Utilities, Licensees and Others,' and Energy Information Administration, Form EIA-412, 'Annual Report of Public Electric Utilities.'

The summary statistics for all fossil-fueled steam-electric plants show an increase in operation and a decrease in maintenance and fuel expenses in 1987, on a weighted per kilowatthour basis. The fuel decrease probably is due to the lower average costs of coal and petroleum receipts at fossil-steam-electric plants in 1987 compared to 1986. On the other hand, an increase in fossil-steam generation at these plants, during this current reporting year compared to last year, would account for the increase in operation costs. Overall, 1987 production expenses showed a decrease of .74 mills per kilowatthour compared to 1986.

Operating Statistics for Large Plants

In 1987 the weighted production expenses for the 309 plants with an installed nameplate capacity of 100 megawatts or more averaged 22.33 mills per kilowatthour. Fuel accounted for 82 percent of these expenses averaging 18.35 mills per kilowatthour; operation expenses averaged 1.47 mills per kilowatthour; and maintenance expenses, 2.51 mills per kilowatthour. The weighted average capacity factor for these plants was 52 percent.

Operating Statistics for Small Plants

In 1987 the weighted average production expenses for the 69 plants with an installed nameplate capacity of less than 100 megawatts averaged 36.82 mills per kilowatthour. Fuel expenses accounted for 67 percent of these production expenses, averaging 24.65 mills per kilowatthour; operation expenses, 6.51 mills per kilowatthour; and maintenance expenses, 5.66 mills per kilowatthour. The weighted average capacity factor for these plants was 27 percent.

Table 12. Average Annual Production Expenses, Weighted by Net Generation, for Fossil-Fueled Steam-Electric Plants, by Capability Range, 1982-1987

(Mills per Kilowatthour)

Year	All			Large (100 Megawatt or Larger)			Small (less than 100 Megawatt)		
	Operation	Maintenance	Fuel	Operation	Maintenance	Fuel	Operation	Maintenance	Fuel
1982	1.23	2.26	24.08	1.19	2.24	23.97	5.44	4.50	35.56
1983	1.25	2.27	23.82	1.21	2.25	23.71	6.20	4.52	38.17
1984	1.31	2.35	23.36	1.27	2.32	23.24	6.69	5.13	40.03
1985	1.41	2.53	22.50	1.37	2.51	22.42	6.83	5.53	34.20
1986	1.46	2.60	19.10	1.43	2.58	19.05	7.06	5.77	27.86
1987	1.50	2.53	18.39	1.47	2.51	18.35	6.51	5.66	24.65

Notes: Weighted average production expenses for 1982-1984 have been revised to include only those units within the sample that generated power in the indicated year.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Operating Statistics by Fuel Mix and Capacity

The selection of 378 fossil-fueled steam-electric plants includes 259 coal-fired plants, and 119 petroleum- and/or gas-fired plants (including the 2 wood-fueled plants that burn fossil fuels). The coal-fired plants burned coal with various quantities of petroleum and/or gas for start-up, flame stabilization, and/or generation.

Weighted production expenses for these 259 coal-fired plants averaged 20.96 mills per kilowatthour. Fuel expenses, which accounted for 81 percent of production expenses, averaged 16.88 mills per kilowatthour; operation expenses, 1.53 mills per kilowatthour; and maintenance expenses averaged 2.55 mills per kilowatthour. The weighted heat rate for these plants averaged 10,216 Btu per kilowatthour and the weighted average capacity factor was 57 percent.

The weighted production expenses for the 223 coal-burning plants with an installed nameplate capacity of 100 megawatts or more averaged 20.90 mills per kilowatthour, of which 16.86 mills were for fuel. The weighted production expenses for the 36 coal-burning plants with an installed nameplate capacity less than 100 megawatts, averaged 32.26 mills per kilowatthour, of which 21.45 mills were for fuel.

Of the 378 fossil-fueled steam-electric plants, 119 used petroleum and/or gas in 1987. Weighted production expenses for these plants averaged 29.57 mills per kilowatthour. Fuel expenses, which accounted for 87 percent of the production expenses, averaged 25.78 mills per kilowatthour; maintenance expenses averaged 2.43 mills per kilowatthour; and operation expenses averaged 1.36 mills per kilowatthour. The heat rate for these 119 plants averaged 10,435 Btu per kilowatthour and the weighted average capacity factor was 35 percent.

Table 13. Average Annual Production Expenses, Weighted by Net Generation, for Fossil-Fueled Steam-Electric Plants, by Type of Fuel Used, 1982-1987

(Mills per Kilowatthour)

Year	Coal			Petroleum and Gas		
	Operation	Maintenance	Fuel	Operation	Maintenance	Fuel
1982	1.28	2.39	18.77	1.05	1.84	40.41
1983	1.27	2.33	19.10	1.20	2.05	40.84
1984	1.32	2.42	18.92	1.30	2.04	41.34
1985	1.40	2.57	18.75	1.43	2.34	39.11
1986	1.47	2.61	17.56	1.43	2.54	26.33
1987	1.53	2.55	16.88	1.36	2.43	25.78

Notes: Weighted average production expenses for 1982-1984 have been revised to include only those units within the sample that generated power in the indicated year.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 14. Average Heat Rates for Fossil-Fueled Steam-Electric Plants in the United States, 1938, 1948, and 1956 to 1987

Year	Heat Rate (Btu per net kilowatthour)	Thermal Efficiency[1] (percent)	Year	Heat Rate (Btu per net kilowatthour)	Thermal Efficiency[1] (percent)
1938	16,500	20.7	1971..........	10,478	32.6
1948	15,738	21.7	1972..........	10,379	32.9
1956	11,738	29.8	1973..........	10,389	32.9
1957	11,365	30.0	1974..........	10,442	32.7
1958	11,065	30.8	1975..........	10,406	32.8
1959	10,970	31.1	1976..........	10,373	32.9
1960	10,760	31.7	1977..........	10,435	32.7
1961	10,650	32.1	1978..........	10,361	32.9
1962	10,558	32.3	1979..........	10,353	32.9
1963	10,482	32.6	1980..........	10,388	32.8
1964	10,462	32.6	1981..........	10,453	32.6
1965	10,435	32.7	1982..........	10,454	32.6
1966	10,415	32.8	1983..........	10,520	32.5
1967	10,432	32.7	1984..........	10,323	33.1
1968	10,398	32.8	1985..........	10,339	33.0
1969	10,447	32.7	1986..........	10,261	33.3
1970	10,494	32.5	1987..........	10,253	33.3

[1] Based on 3,412 Btu as the energy equivalent of 1 kilowatthour.

Notes: This table includes internal combustion plants prior to 1958 which generated less than 1 percent of the total kilowatthour output in the reported years. Data for each year are based on those plants that are included in the related "Plant Construction Cost and Annual Production Expenses" publication for the respective year and are not directly comparable.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

The weighted production expenses for all petroleum-fired and gas-fired plants with an installed nameplate capacity of 100 megawatts or more, averaged 22.62 mills per kilowatthour, of which 17.99 mills per kilowatthour were for fuel. Weighted production expenses for the petroleum-fired and gas-fired plants with an installed nameplate capacity less than 100 megawatts, averaged 35.74 mills per kilowatthour. Fuel expenses for these plants averaged 23.61 mills per kilowatthour.

Comparable Heat Rate for Fossil Plants

Plant heat rate is a measurement used throughout the electric utility industry as a measure of generating station thermal efficiency. It is expressed in Btu per net kilowatthour: the lower the number the more efficient the heat rate. The 378 fossil-fueled steam-electric plants averaged 10,253 Btu per kilowatthour in 1987 compared to the coal-fired plants which measured 10,216 Btu per kilowatthour, and the petroleum-fired and gas-fired plants which measured 10,435 Btu per kilowatthour. Coal-fired plants generally have lower heat rates than petroleum-fired and gas-fired plants.

Historical Plant Cost and Production Expenses for New Plants

This report includes one coal-fired plant which began commercial operation in 1987 (Table 5). This plant, Stanton Energy, operated by Orlando Utilities Commission had an average construction cost of $961 per kilowatt. The weighted production expenses for this new coal-fired plant averaged 20.91 mills per kilowatthour; fuel expenses accounted for 79 percent, averaging 16.47 mills per kilowatthour; operation expenses averaged 2.75 mills per kilowatthour; and maintenance expenses 1.68 mills per kilowatthour.

Included in this report are two fossil-fueled steam-electric plants that began commercial operation in 1986, Dolet Hills operated by Central Louisiana and Oklaunion operated by West Texas. The production expenses for these plants averaged 18.44 mills per kilowatthour in 1987, their first complete year of operation.

Below are the total plant cost investment and the average plant cost per kilowatt for fossil-fueled steam-electric plants of 300 megawatts capacity or larger that began commercial operation between 1975 and 1987 (Table 15).

Table 15. Annual Historical Plant Cost for New Fossil-Fueled Steam-Electric Plants, 300-Megawatt Capacity or Larger, 1975-1987

Year	Historical Plant Cost (thousand dollars)	Cost (dollars per kilowatt)
1975	1,592,582	228
1976	1,667,976	320
1977	1,423,334	275
1978	878,044	361
1979	804,789	537
1980	2,769,869	541
1981	1,207,691	602
1982	866,663	702
1983	1,256,273	717
1984	3,972,980	1,079
1985	946,833	912
1986	865,686	714
1987	446,280	961

Note: Data for each year are based on those plants that are included in the related "Plant Construction Cost and Annual Production Expenses" publication for the respective year.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987

Name of Utility	Alabama Power Co						Southern Electric Generating Co	
Name of Plant	Barry		Gorgas		James H Miller Jr		E C Gaston	
Region and Power Supply Area Location of Plant	III-22 Bucks AL		III-22 Gorgas AL		III-22 West Jefferson AL		III-22 Wilsonville AL	
General Operating Characteristics								
Installed Generating Capacity (MW)	1,770.8		1,485.7		1,411.0		2,012.8	
Generation (million kWh)	8,753.8		7,008.4		5,259.3		9,680.3	
Plant Factor Based on Nameplate Rating (percent)	56		54		43		55	
Net Peak Demand on Plant - 60 Minutes (MW)	1,631.0		1,365.0		1,411.0		1,943.0	
Net Continuous Plant Capability								
Winter Capability (MW)	1,636.7		1,369.8		1,332.6		1,929.5	
Summer Capability (MW)	1,636.7		1,369.1		1,332.6		1,929.5	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	151		312		5,087		1,026	
Structures and Improvements	50,801		53,513		157,791		60,046	
Equipment	314,443		274,206		605,465		325,946	
Total	365,396		328,032		768,343		387,018	
Cost per kW of Installed Capacity (dollars)	206		221		545		192	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1,776	0.20	1,747	0.25	1,337	0.25	3,273	0.34
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	3,252	.37	3,053	.44	1,752	.33	2,014	.21
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	1,505	.17	1,746	.25	1,186	.23	1,109	.11
Miscellaneous Steam Power Expenses	4,593	.52	4,842	.69	2,922	.56	5,103	.53
Rents	37	.00	3	.00	23	.00	2,528	.26
Maintenance Expenses								
Maintenance Supervision and Engineering	2,404	.27	1,478	.21	1,361	.26	2,604	.27
Maintenance of Structures	970	.11	1,706	.24	561	.11	1,199	.12
Maintenance of Boiler Plant	10,890	1.24	9,627	1.37	3,916	.74	14,758	1.52
Maintenance of Electric Plant	4,390	.50	2,442	35	820	.16	5,336	.55
Maintenance of Miscellaneous Steam Plant	682	.08	586	.08	550	.10	649	.07
Total, Exclusive of Fuel	30,499	3.46	27,230	3.88	14,428	2.74	38,573	3.98
Fuel	197,943	22.61	147,562	21.06	132,907	25.27	198,099	20.46
Total Production Expenses	228,442	26.10	174,792	24.94	147,336	28.01	236,673	24.45
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	[1] 3,556.8	55.17	[2] 2,815.3	52.41	[3] 2,003.1	66.35	3,867.3	51.22
Btu per Pound; Cents per Million Btu	11,946	231	12,354	212	12,712	261	12,343	207
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	53.62	0	49.44	0	66.85	0	50.04
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	0	0	0	0
Btu per Gallon; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	798.1	2.16	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	1,097	197	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	9,807		9,925		9,671		9,862	
Plant Hours Connected to Load	8,760		8,760		6,649		8,760	
Total Number of Units (Exclusive of Auxiliary Units)	5		6		1		4	
Condensing Water Supply	Mobile River		Black Warrior River		Warrior River		Coosa River	
Average Number of Employees	459		538		365		435	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1954		1929		1978		1960	

[1] Includes 4,565 equivalent tons of starting oil.

[2] Includes 7,769 equivalent tons of starting oil.

[3] Includes 19,077 equivalent tons of oil and natural gas for start-up and flame stabilization.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Tennessee Valley Authority				Alamito Co		Arizona Public Service Co	
Name of Plant	Colbert		Widows Creek		Springerville		Cholla	
Region and Power Supply Area	III-20		III-22		VIII-48		VIII-48	
Location of Plant	Pride	AL	Stevenson	AL	Tucson	AZ	Joseph City	AZ
General Operating Characteristics								
Installed Generating Capacity (MW)	1,350.0		1,966.8		420.0		1,105.0	
Generation (million kWh)	7,841.8		5,572.8		1,943.3		5,336.3	
Plant Factor Based on Nameplate Rating (percent)	66		32		53		55	
Net Peak Demand on Plant - 60 Minutes (MW)	1,264.0		1,502.0		–		59.5	
Net Continuous Plant Capability								
Winter Capability (MW)	1,300.0		1,780.0		1,191.0		946.0	
Summer Capability (MW)	1,276.0		1,762.0		1,191.0		946.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	279		997		2,702		2,219	
Structures and Improvements	35,376		47,743		107,296		84,074	
Equipment	272,864		417,983		419,653		720,690	
Total	308,518		466,723		[1] 529,652		806,983	
Cost per kW of Installed Capacity (dollars)	229		237		1,261		730	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1,603	0.20	2,202	0.40	707	0.36	382	0.07
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	2,762	.35	5,116	.92	3,390	1.74	3,405	.64
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	1,254	.16	1,272	.23	553	.28	922	.17
Miscellaneous Steam Power Expenses	2,294	.29	4,077	.73	1,116	.57	1,619	.30
Rents	0	.00	0	.00	64,517	33.20	101	.02
Maintenance Expenses								
Maintenance Supervision and Engineering	414	.05	801	.14	684	.35	2,771	.52
Maintenance of Structures	1,069	.14	936	.17	585	.30	826	.15
Maintenance of Boiler Plant	6,081	.78	12,416	2.23	3,468	1.78	6,614	1.24
Maintenance of Electric Plant	1,583	.20	1,923	.35	1,118	.58	1,366	.26
Maintenance of Miscellaneous Steam Plant	447	.06	1,347	.24	1,395	.72	1,702	.32
Total, Exclusive of Fuel	17,507	2.23	30,090	5.41	77,533	39.88	19,706	3.69
Fuel	148,930	18.99	83,178	14.93	46,529	23.94	48,170	9.03
Total Production Expenses	166,436	21.22	113,268	20.33	124,063	63.84	[2] 67,876	12.72
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	3,359.4	44.19	2,451.7	33.61	1,032.5	45.06	2,842.1	28.35
Btu per Pound; Cents per Million Btu	11,630	190	12,240	138	9,526	236	9,897	143
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	44.04	0	32.34	0	45.06	0	27.60
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	6.8	NR	81.1	25.12
Btu per Gallon; Cents per Million Btu	0	0	0	0	140,315	NR	139,112	430
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	NR	0	24.47
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	168.8	2.66
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	876	305
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	9,980		10,810		10,143		10,659	
Plant Hours Connected to Load	8,760		8,760		7,153		8,694	
Total Number of Units (Exclusive of Auxiliary Units)	5		8		-		4	
Condensing Water Supply	Tenn Rv/ Pickwick Lk		Tenn Rv/ Gntrvile Lk		Wells		Artificial Lake	
Average Number of Employees	369		510		198		265	
Type of Plant Construction	Conventional		Conventional		Conventional		Full-Outdoor	
Initial Year of Plant Operation	1955		1952		1985		1962	

[1] Leased property: cost $515,752,002; rent $64,500,000.

[2] Excludes fuel used for generation and sold to Southern California Edison.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Salt River Proj Ag I & P						Arkansas Power & Light Co	
Name of Plant	Coronado		Navajo		San Tan [1]		Independence	
Region and Power Supply Area Location of Plant	VIII-48 Phoenix AZ		VIII-48 Page AZ		VIII-48 Gilbert AZ		V-25 Newark AR	
General Operating Characteristics								
Installed Generating Capacity (MW)	821.8		2,409.5		414.0		1,600.0	
Generation (million kWh)	1,928.2		13,819.2		991.7		8,591.7	
Plant Factor Based on Nameplate Rating (percent)	27		65		27		61	
Net Peak Demand on Plant - 60 Minutes (MW)	723.0		2,268.0		294.0		1,686.0	
Net Continuous Plant Capability								
Winter Capability (MW)	700.0		2,250.0		288.0		1,678.0	
Summer Capability (MW)	700.0		2,250.0		288.0		1,678.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	8,072		198		149		4,617	
Structures and Improvements	138,390		87,755		1,089		111,901	
Equipment	664,040		704,161		62,953		823,415	
Total	810,501		792,113		64,192		939,933	
Cost per kW of Installed Capacity (dollars)	986		329		155		588	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	2,537	1.32	2,143	0.16	213	0.21	1,375	0.16
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	4,543	2.36	3,119	.23	768	.77	748	.09
Steam from Other Sources	0	.00	0	.00	0	.00	-1	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	474	.25	3,857	.28	0	.00	2,010	.23
Miscellaneous Steam Power Expenses	3,069	1.59	6,515	.47	473	.48	4,246	.49
Rents	136	.07	692	.05	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	2,674	1.39	1,164	.08	286	.29	756	.09
Maintenance of Structures	1,330	.69	3,532	.26	172	.17	430	.05
Maintenance of Boiler Plant	14,009	7.27	35,975	2.60	0	.00	4,196	.49
Maintenance of Electric Plant	4,224	2.19	14,745	1.07	2,160	2.18	1,242	.14
Maintenance of Miscellaneous Steam Plant	675	.35	2,193	.16	192	.19	11,643	1.36
Total, Exclusive of Fuel	33,671	17.46	73,935	5.36	4,264	4.29	26,649	3.10
Fuel	52,779	27.37	132,704	9.60	22,334	22.52	149,724	17.43
Total Production Expenses	86,450	44.83	206,639	14.95	26,598	26.82	176,374	20.53
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	1,043.9	48.45	6,453.6	20.00	0	0	5,134.8	28.23
Btu per Pound; Cents per Million Btu	10,498	231	10,983	91	0	0	8,604	164
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	46.66	0	18.59	0	0	0	28.23
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	122.2	17.97	125.0	29.23	.4	53.02	59.4	81.97
Btu per Gallon; Cents per Million Btu	138,269	309	138,997	501	139,369	906	136,740	1,427
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	19.75	0	20.69	0	NR	0	81.97
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	10,069.5	2.21	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	1,042	212	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	11,735		10,311		10,603		10,316	
Plant Hours Connected to Load	6,436		8,730		8,759		1,745	
Total Number of Units (Exclusive of Auxiliary Units)	-		3		4		2	
Condensing Water Supply	Deep Wells		Pond/CT		Wells/CT		White River	
Average Number of Employees	488		752		48		277	
Type of Plant Construction	Outdoor		Outdoor		Outdoor		Full Outdoor	
Initial Year of Plant Operation	1979		1974		1974		1983	

[1] Combined cycle.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Arkansas Power & Light Co		Southwestern Electric Power Co		Burbank City of		Los Angeles City of	
Name of Plant	White Bluff		Flint Creek		Magnolia Blvd [1]		Haynes	
Region and Power Supply Area	V-25		V-33		VIII-47		VIII-47	
Location of Plant	Jefferson AR		Gentry AR		Burbank CA		Seal Beach CA	
General Operating Characteristics								
Installed Generating Capacity (MW)	1,600.0		510.8		57.5		1,606.0	
Generation (million kWh)	8,017.8		2,768.8		7.8		2,888.2	
Plant Factor Based on Nameplate Rating (percent)	57		62		2		21	
Net Peak Demand on Plant - 60 Minutes (MW)	1,682.5		516.0		29.4		1,095.0	
Net Continuous Plant Capability								
Winter Capability (MW)	1,659.0		480.0		61.0		1,570.0	
Summer Capability (MW)	1,659.0		480.0		61.0		1,570.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	1,947		1,611		1,007		933	
Structures and Improvements	73,563		32,565		2,730		35,090	
Equipment	611,061		118,047		29,348		193,461	
Total	686,571		152,223		[2] 33,686		229,485	
Cost per kW of Installed Capacity (dollars)	429		298		586		143	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	962	0.12	66	0.02	412	52.61	2,682	0.93
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	25	.00	497	.18	1,244	158.72	895	.31
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	2,321	.29	548	.20	1,135	144.80	2,939	1.02
Miscellaneous Steam Power Expenses	3,750	.47	472	.17	52	6.63	0	.00
Rents	6,397	.80	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	848	.11	49	.02	261	33.29	3,065	1.06
Maintenance of Structures	421	.05	161	.06	49	6.27	884	.31
Maintenance of Boiler Plant	4,823	.60	1,814	.66	478	60.94	13,258	4.59
Maintenance of Electric Plant	3,172	.40	414	.15	460	58.73	6,760	2.34
Maintenance of Miscellaneous Steam Plant	1,439	.18	37	.01	134	17.08	0	.00
Total, Exclusive of Fuel	24,158	3.02	4,058	1.47	4,225	539.07	30,483	10.56
Fuel	220,782	27.54	42,441	15.33	7,503	957.37	[3] 75,569	26.16
Total Production Expenses	244,941	30.55	46,498	16.79	[2] 11,728	.00	106,052	36.70
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	7,130.0	30.53	1,751.1	24.11	0	0	0	0
Btu per Pound; Cents per Million Btu	8,458	180	8,406	143	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	30.53	0	24.20	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	63.8	47.88	9.0	28.02	0	0	853.2	15.90
Btu per Gallon; Cents per Million Btu	136,737	834	140,000	476	0	0	145,079	261
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	47.88	0	23.71	0	0	0	NR
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	3,007.4	2.49	23,504.6	2.17
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	1,073	232	1,049	206
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	15,088		10,652		13,349		10,338	
Plant Hours Connected to Load	7,325		7,593		1,652		8,610	
Total Number of Units (Exclusive of Auxiliary Units)	2		1		2		6	
Condensing Water Supply	Arkansas River		Flint Crk Reservoir		Wells/CT		Pacific Ocean	
Average Number of Employees	275		142		48		210	
Type of Plant Construction	Outdoor		Outdoor Boiler		Semi-OD		Full-Outdoor	
Initial Year of Plant Operation	1980		1978		1941		1962	

[1] Includes gas turbine plant data.

[2] Data represents costs for all plants owned by City of Burbank.

[3] Includes additional fuel adjustment expenses.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Pacific Gas & Electric Co							
Name of Plant	Avon		Contra Costa		Morro Bay		Moss Landing	
Region and Power Supply Area	VIII-46		VIII-46		VIII-46		VIII-46	
Location of Plant	Avon CA		Antioch CA		Morro Bay CA		Moss Landing CA	
	General Operating Characteristics							
Installed Generating Capacity (MW)	40.0		1,291.4		1,056.3		2,174.7	
Generation (million kWh)	-1.1		3,782.5		3,279.8		6,851.2	
Plant Factor Based on Nameplate Rating (percent)	-		33		35		36	
Net Peak Demand on Plant - 60 Minutes (MW)	-		1,095.0		1,030.0		1,800.0	
Net Continuous Plant Capability								
Winter Capability (MW)	46.0		1,260.0		1,002.0		2,060.0	
Summer Capability (MW)	-		1,260.0		1,002.0		2,060.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	0		1,286		638		1,009	
Structures and Improvements	3,940		26,109		22,460		23,695	
Equipment	7,775		184,267		152,402		334,744	
Total	11,715		213,661		175,500		359,447	
Cost per kW of Installed Capacity (dollars)	293		165		166		165	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	39	0.00	638	0.17	493	0.15	835	0.12
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	163	.00	1,580	.42	1,159	.35	2,552	.37
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	138	.00	1,537	.41	1,028	.31	1,793	.26
Miscellaneous Steam Power Expenses	75	.00	1,998	.53	1,238	.38	1,624	.24
Rents	0	.00	12	.00	295	.09	291	.04
Maintenance Expenses								
Maintenance Supervision and Engineering	69	.00	1,406	.37	686	.21	1,750	.26
Maintenance of Structures	0	.00	9	.00	2	.00	35	.01
Maintenance of Boiler Plant	95	.00	3,021	.80	2,875	.88	7,262	1.06
Maintenance of Electric Plant	9	.00	1,457	.39	3,169	.97	6,830	1.00
Maintenance of Miscellaneous Steam Plant	13	.00	794	.21	423	.13	826	.12
Total, Exclusive of Fuel	601	.00	12,452	3.30	11,390	3.47	23,798	3.48
Fuel	[1] 392	.00	[2] 99,739	26.37	[2] 123,545	37.67	[2] 202,549	29.56
Total Production Expenses	993	.00	112,190	29.66	134,936	41.00	226,347	33.00
	Fuel Used							
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	NR	NR	122.6	19.50	413.6	18.83	291.0	19.67
Btu per Gallon; Cents per Million Btu	146,810	NR	147,868	314	144,356	311	148,513	315
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	NR	0	NR	0	NR	0	NR
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	38,462.5	2.30	30,995.8	3.37	64,439.6	2.77
Btu per Cubic Foot; Cents per Million Btu	0	0	1,025	224	1,042	324	1,036	267
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
	Plant Characteristics							
Average Btu per kWh Net Generation	NR		10,622		10,615		10,012	
Plant Hours Connected to Load	45		8,760		8,760		8,760	
Total Number of Units (Exclusive of Auxiliary Units)	1		7		4		7	
Condensing Water Supply	Cooling Tower		San Joacquin		Morro Bay		Monterey Bay	
Average Number of Employees	45		191		124		216	
Type of Plant Construction	Semi-OD		Semi-OD		Semi-OD		Semi-OD	
Initial Year of Plant Operation	1940		1951		1955		1950	

[1] Includes fuel used for electric energy and process steam.

[2] Includes facility charges and losses on fuel oil sales.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Pacific Gas & Electric Co				San Diego Gas & Electric Co			
Name of Plant	Oleum Steam		Pittsburg		Encina		South Bay	
Region and Power Supply Area Location of Plant	VIII-46 Oleum CA		VIII-46 Contra Costa County CA		VIII-47 Carlsbad CA		VIII-47 San Diego CA	
General Operating Characteristics								
Installed Generating Capacity (MW)	80.0		2,028.9		982.0		714.0	
Generation (million kWh)	30.3		7,706.5		2,134.2		2,338.6	
Plant Factor Based on Nameplate Rating (percent)	4		43		25		37	
Net Peak Demand on Plant - 60 Minutes (MW)	42.0		2,025.0		917.0		706.0	
Net Continuous Plant Capability								
Winter Capability (MW)	8.7		2,022.0		917.0		706.0	
Summer Capability (MW)	-		2,022.0		917.0		706.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	38		5,009		4,983		1,265	
Structures and Improvements	3,425		41,430		87,702		34,607	
Equipment	13,051		394,150		192,378		81,229	
Total	16,513		440,589		[1] 285,063		117,101	
Cost per kW of Installed Capacity (dollars)	206		217		290		164	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	111	3.68	903	0.12	894	0.42	838	0.36
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	729	24.07	2,690	.35	2,019	.95	1,640	.70
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	537	17.73	2,133	.28	1,702	.80	1,376	.59
Miscellaneous Steam Power Expenses	189	6.24	3,566	.46	1,015	.48	523	.22
Rents	0	.00	12	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	158	5.21	2,432	.32	187	.00	532	.23
Maintenance of Structures	0	.00	26	.00	1,569	.74	1,631	.70
Maintenance of Boiler Plant	367	12.10	6,438	.84	2,516	1.18	1,152	.49
Maintenance of Electric Plant	89	2.92	6,140	.80	2,948	1.38	701	.30
Maintenance of Miscellaneous Steam Plant	54	1.78	790	.10	428	.20	280	.12
Total, Exclusive of Fuel	2,234	73.73	25,132	3.27	13,278	6.24	8,673	3.71
Fuel	[2] 1,755	57.94	[3] 216,656	28.11	[4] 49,737	23.30	50,932	21.76
Total Production Expenses	3,989	132.00	241,788	31.00	63,013	29.53	59,604	25.49
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	314.0	3.33	95.5	19.51	132.3	18.40	123.7	18.49
Btu per Gallon; Cents per Million Btu	148,810	53	140,170	331	150,302	291	148,593	296
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	NR	0	NR	0	NR	0	NR
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	78,720.8	2.48	22,315.3	2.12	23,078.7	2.11
Btu per Cubic Foot; Cents per Million Btu	0	0	1,019	243	1,039	204	1,030	205
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	64,776		10,481		[5] 10,753		[5] 10,029	
Plant Hours Connected to Load	3,314		8,760		8,224		8,760	
Total Number of Units (Exclusive of Auxiliary Units)	2		7		5		4	
Condensing Water Supply	San Pablo Bay		Suiscon Bay		Pacific Ocean		San Diego Bay	
Average Number of Employees	53		277		113		117	
Type of Plant Construction	Semi-OD		Semi-OD		Conventional		Full-Outdoor	
Initial Year of Plant Operation	1942		1954		1953		1960	

[1] Amount includes the capitalized value of Encina 5 lease as required by FASB statement No. 71 and FERC order No. 390.

[2] Includes fuel used for electric energy and process steam.

[3] Includes facility charges and losses on fuel oil sales.

[4] Excludes natural gas fixed demand charges of $22,877,004.

[5] Based on oil equivalent Btu's for fossil fuel steam and gas turbine units. Gas Btu's are reduced by 4.6 percent to reflect improved efficiency on oil fuel.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Southern California Edison Co							
Name of Plant	Alamitos [1]		Cool Water [2]		El Segundo		Etiwanda [1]	
Region and Power Supply Area	VIII-47		VIII-47		VIII-47		VIII-47	
Location of Plant	Alamitos CA		Daggett CA		El Segunda CA		Fontana CA	
General Operating Characteristics								
Installed Generating Capacity (MW)	2,120.5		726.9		996.5		1,049.1	
Generation (million kWh)	6,212.9		357.5		2,457.8		2,058.3	
Plant Factor Based on Nameplate Rating (percent)	33		6		28		22	
Net Peak Demand on Plant - 60 Minutes (MW)	1,845.0		518.0		920.0		782.0	
Net Continuous Plant Capability								
Winter Capability (MW)	2,097.0		658.0		1,020.0		1,038.0	
Summer Capability (MW)	2,083.0		628.0		1,020.0		1,030.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	405		1,126		1,269		374	
Structures and Improvements	14,266		16,003		6,369		7,324	
Equipment	223,988		175,944		107,638		115,712	
Total	238,659		193,072		115,275		123,410	
Cost per kW of Installed Capacity (dollars)	113		266		116		118	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1,757	0.28	691	1.93	746	0.30	694	0.34
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	1,260	.20	1,029	2.88	770	.31	737	.36
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	1,160	.19	242	.68	741	.30	671	.33
Miscellaneous Steam Power Expenses	4,219	.68	598	1.67	589	.24	878	.43
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	2,559	.41	600	1.68	1,029	.42	2,089	1.01
Maintenance of Structures	1,233	.20	661	1.85	398	.16	271	.13
Maintenance of Boiler Plant	5,481	.88	186	.52	2,816	1.15	4,449	2.16
Maintenance of Electric Plant	2,682	.43	1,428	3.99	1,310	.53	7,327	3.56
Maintenance of Miscellaneous Steam Plant	736	.12	86	.24	490	.20	864	.42
Total, Exclusive of Fuel	21,087	3.39	5,521	15.44	8,889	3.61	17,980	8.74
Fuel	157,529	25.36	11,685	32.69	64,912	26.41	55,215	26.82
Total Production Expenses	178,617	28.75	17,204	48.12	73,801	30.03	73,195	35.56
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	251.9	19.27	7.8	29.63	73.2	20.83	69.2	18.07
Btu per Gallon; Cents per Million Btu	146,305	313	137,368	514	146,490	338	148,190	290
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	NR	0	NR	0	NR	0	NR
Gas Burned (MMcf); Cost per Mcf (dollars)	58,167.5	2.63	3,809.1	3.01	23,381.3	2.71	20,073.9	2.69
Btu per Cubic Foot; Cents per Million Btu	1,045	251	1,042	289	1,041	260	1,033	260
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	10,029		11,227		10,069		10,284	
Plant Hours Connected to Load	8,760		2,413		8,222		8,613	
Total Number of Units (Exclusive of Auxiliary Units)	7		2		4		4	
Condensing Water Supply	Pacific Ocean		Mohave rv/CT		Pacific Ocean		Aqueducts/CT	
Average Number of Employees	135		92		92		75	
Type of Plant Construction	Full-Outdoor		Full-Outdoor		Full-Outdoor		Full-Outdoor/ Conv	
Initial Year of Plant Operation	1956		1961		1955		1955	

[1] Includes data for 138.1 megawatts gas turbine capacity.

[2] Combined cycle.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Southern California Edison Co							
Name of Plant	Huntington Beach [1]		Long Beach [2]		Ormand Beach		Redondo Beach	
Region and Power Supply Area Location of Plant	VIII-47 Huntington Beach CA		VIII-47 Long Beach CA		VIII-47 Oxnard CA		VIII-47 Redondo Beach CA	
General Operating Characteristics								
Installed Generating Capacity (MW)	1,008.5		586.5		1,612.8		1,579.5	
Generation (million kWh)	1,638.5		928.1		6,729.1		5,069.1	
Plant Factor Based on Nameplate Rating (percent)	19		18		48		37	
Net Peak Demand on Plant - 60 Minutes (MW)	700.0		473.0		150.6		1,225.0	
Net Continuous Plant Capability								
Winter Capability (MW)	1,017.0		560.0		1,500.0		1,602.0	
Summer Capability (MW)	1,003.0		430.5		1,500.0		1,602.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	1,477		447		7,563		647	
Structures and Improvements	7,341		22,719		11,930		15,829	
Equipment	127,425		125,211		211,415		187,338	
Total	136,242		148,377		230,908		203,814	
Cost per kW of Installed Capacity (dollars)	135		253		143		129	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	735	0.45	562	0.61	614	0.09	961	0.19
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	1,060	.65	1,235	1.33	1,299	.19	2,339	46
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	669	.41	0	.00	431	.06	954	.19
Miscellaneous Steam Power Expenses	783	.48	749	.81	642	.10	1,017	.20
Rents	0	.00	0	.00	14	.00	4	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	2,377	1.45	805	.87	897	.13	3,065	.60
Maintenance of Structures	544	.33	502	.54	466	.07	284	.06
Maintenance of Boiler Plant	5,307	3.24	2	.00	3,302	.49	6,565	1.30
Maintenance of Electric Plant	4,587	2.80	6,628	7.14	918	.14	12,149	2.40
Maintenance of Miscellaneous Steam Plant	631	.38	224	.24	322	.05	610	.12
Total, Exclusive of Fuel	16,693	10.19	10,707	11.54	8,905	1.32	27,948	5.52
Fuel	41,188	25.14	26,513	28.57	170,694	25.37	125,936	24.84
Total Production Expenses	57,880	35.33	37,221	40.11	179,600	26.69	153,885	30.36
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	38.6	21.62	1.0	41.02	208.0	18.22	6.2	19.64
Btu per Gallon; Cents per Million Btu	145,880	352	126,897	770	147,198	295	146,020	320
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	NR	0	NR	0	NR	0	NR
Gas Burned (MMcf); Cost per Mcf (dollars)	15,940.9	2.53	9,742.6	2.71	61,727.6	2.70	48,381.1	2.60
Btu per Cubic Foot; Cents per Million Btu	1,044	242	1,037	262	1,045	260	1,048	248
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	10,301		10,892		9,773		10,006	
Plant Hours Connected to Load	8,760		4,975		8,752		8,730	
Total Number of Units (Exclusive of Auxiliary Units)	4		9		2		8	
Condensing Water Supply	Pacific Ocean		Pacific Ocean		Pacific Ocean		Pacific Ocean	
Average Number of Employees	74		74		77		114	
Type of Plant Construction	Full-Outdoor/ Conv		Conventional		Full-Outdoor		Outdoor Boiler	
Initial Year of Plant Operation	1958		1928		1971		1948	

[1] Includes data for 138.1 megawatts gas turbine capacity.

[2] Combined cycle.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Centel Corp		Colorado Springs City of				Platte River Power Authority	
Name of Plant	Pueblo		George Birdsal [1]		Martin Drake		Rawhide	
Region and Power Supply Area Location of Plant	VI-32 Pueblo CO		VI-32 Colorado Springs CO		VI-32 Colorado Springs CO		VI-32 Larimer CO	
General Operating Characteristics								
Installed Generating Capacity (MW)	33.8		62.5		277.3		255.0	
Generation (million kWh)	91.2		.7		1,221.6		1,868.5	
Plant Factor Based on Nameplate Rating (percent)	31		-		50		84	
Net Peak Demand on Plant - 60 Minutes (MW)	38.0		45.0		270.0		255.0	
Net Continuous Plant Capability								
Winter Capability (MW)	36.5		57.0		283.0		255.0	
Summer Capability (MW)	36.5		57.0		283.0		255.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	99		11		2,754		6,316	
Structures and Improvements	1,131		1,837		12,816		175,576	
Equipment	4,986		6,651		58,162		270,764	
Total	6,216		8,499		73,732		452,656	
Cost per kW of Installed Capacity (dollars)	184		136		266		1,775	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	72	0.79	0	0.00	515	0.42	1,384	0.74
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	194	2.13	11	14.55	573	.47	1,884	1.01
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	161	1.77	18	23.62	2,022	1.65	1,487	.80
Miscellaneous Steam Power Expenses	38	.42	10	13.41	1,138	.93	1,439	.77
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	5	.05	0	.00	116	.10	381	.20
Maintenance of Structures	2	.02	1	1.66	185	.15	366	.20
Maintenance of Boiler Plant	37	.41	9	12.36	1,649	1.35	1,680	.90
Maintenance of Electric Plant	14	.15	1	1.18	1,062	.87	148	.08
Maintenance of Miscellaneous Steam Plant	0	.00	0	.27	91	.07	868	.46
Total, Exclusive of Fuel	523	5.74	50	67.05	7,351	6.01	9,637	5.16
Fuel	3,477	38.15	[2] 220	295.38	25,730	21.06	18,581	9.94
Total Production Expenses	4,000	43.89	270	362.43	33,082	27.08	28,217	15.10
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	660.9	37.29	1,108.3	16.36
Btu per Pound; Cents per Million Btu	0	0	0	0	10,513	177	8,924	92
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	NR	0	13.23
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	0	NR	3.8	19.32
Btu per Gallon; Cents per Million Btu	0	0	0	0	0	NR	138,211	336
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	NR	0	19.32
Gas Burned (MMcf); Cost per Mcf (dollars)	1,598.6	2.13	29.1	3.85	83.0	3.85	0	0
Btu per Cubic Foot; Cents per Million Btu	848	251	980	393	981	392	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	14,866		NR		11,441		10,587	
Plant Hours Connected to Load	8,555		63		8,759		7,995	
Total Number of Units (Exclusive of Auxiliary Units)	3		3		6		1	
Condensing Water Supply	Arkansas River		Municipality		Municipality		Municipality	
Average Number of Employees	13		NR		NR		132	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1922		1953		1925		1984	

[1] On standby.

[2] Includes building operation expenses.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Public Service Co of Colorado							
Name of Plant	Cameo		Cherokee		Comanche		Pawnee	
Region and Power Supply Area Location of Plant	VI-32 Cameo CO		VI-32 Denver CO		VI-32 Pueblo CO		VI-32 Denver CO	
	General Operating Characteristics							
Installed Generating Capacity (MW)	75.0		804.0		779.0		552.0	
Generation (million kWh)	272.3		3,326.9		3,144.3		2,871.4	
Plant Factor Based on Nameplate Rating (percent)	41		47		46		59	
Net Peak Demand on Plant - 60 Minutes (MW)	79.0		760.0		719.0		544.0	
Net Continuous Plant Capability								
Winter Capability (MW)	73.0		707.0		660.0		495.0	
Summer Capability (MW)	73.0		707.0		660.0		495.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	120		910		571		5,015	
Structures and Improvements	2,389		18,220		32,904		134,982	
Equipment	19,391		140,604		165,400		330,800	
Total	21,901		159,733		198,875		470,797	
Cost per kW of Installed Capacity (dollars)	292		199		255		853	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	349	1.28	566	0.17	996	0.32	1,770	0.62
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	409	1.50	1,992	.60	1,058	.34	1,562	.54
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	240	.88	1,223	.37	2,199	.70	975	.34
Miscellaneous Steam Power Expenses	337	1.24	2,040	.61	2,098	.67	2,638	.92
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	269	.99	1,394	.42	1,543	.49	2,588	.90
Maintenance of Structures	56	.21	1,107	.33	555	.18	641	.22
Maintenance of Boiler Plant	453	1.67	3,314	1.00	3,243	1.03	3,837	1.34
Maintenance of Electric Plant	164	.60	1,202	.36	3,146	1.00	554	.19
Maintenance of Miscellaneous Steam Plant	50	.18	295	.09	203	.06	257	.09
Total, Exclusive of Fuel	2,327	8.55	13,133	3.95	15,041	4.79	14,822	5.16
Fuel	5,228	19.20	55,869	16.79	45,894	14.60	37 477	13.05
Total Production Expenses	7,556	28.00	69,002	21.00	60,935	19.00	52,300	18.00
	Fuel Used							
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	139.7	33.65	1,598.6	30.25	1,931.5	22.65	1,798.7	19.98
Btu per Pound; Cents per Million Btu	11,576	145	10,674	142	8,503	133	8,564	116
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	NR	0	NR	0	NR	0	NR
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	28.72	.4	28.72	9.8	21.42	16.9	21.34
Btu per Gallon; Cents per Million Btu	133,000	514	136,983	499	138,905	367	139,930	366
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	NR	0	NR	0	NR	0	NR
Gas Burned (MMcf); Cost per Mcf (dollars)	91.9	4.05	2,869.7	2.01	10.2	1.95	0	0
Btu per Cubic Foot; Cents per Million Btu	1,043	389	981	204	990	197	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
	Plant Characteristics							
Average Btu per kWh Net Generation	12,227		11,105		10,467		10,765	
Plant Hours Connected to Load	8,784		8,463		8,784		7,241	
Total Number of Units (Exclusive of Auxiliary Units)	2		4		2		1	
Condensing Water Supply	Grand Valley/CT		S Platte Rv/ Wells		Arkansas River		South Platte River	
Average Number of Employees	45		178		109		114	
Type of Plant Construction	Outdoor		Outdoor Boiler		Outdoor Boiler		Outdoor	
Initial Year of Plant Operation	1957		1957		1973		1981	

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Connecticut Light & Power Co		United Illuminating Co				Delmarva Power & Light Co	
Name of Plant	Norwalk Harbor		Bridgeport Harbor		New Haven Harbor		Edge Moor	
Region and Power Supply Area Location of Plant	I-02 Norwalk CT		I-02 Bridgeport CT		I-02 New Haven CT		I-05 Wilmington DE	
General Operating Characteristics								
Installed Generating Capacity (MW)	326.4		660.5		460.3		698.2	
Generation (million kWh)	1,893.7		3,419.6		2,748.9		3,373.6	
Plant Factor Based on Nameplate Rating (percent)	66		59		68		55	
Net Peak Demand on Plant - 60 Minutes (MW)	341.0		627.0		418.9		699.0	
Net Continuous Plant Capability								
Winter Capability (MW)	0		627.0		447.0		666.0	
Summer Capability (MW)	0		627.0		447.0		666.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	901		6,677		3,861		163	
Structures and Improvements	18,193		29,370		16,885		38,133	
Equipment	44,284		137,212		119,243		214,687	
Total	63,378		173,259		139,989		252,983	
Cost per kW of Installed Capacity (dollars)	194		262		304		362	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	747	0.39	1,323	0.39	1,057	0.38	476	0.14
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	778	.41	2,096	.61	829	.30	1,772	.53
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	-47	-.01
Electric Expenses	669	.35	482	.14	206	.07	784	.23
Miscellaneous Steam Power Expenses	1,382	.73	1,707	.50	1,018	.37	1,712	.51
Rents	7	.00	12,671	3.71	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	333	.18	0	.00	57	.02	355	.11
Maintenance of Structures	734	.39	904	.26	161	.06	232	.07
Maintenance of Boiler Plant	2,747	1.45	11,589	3.39	2,127	.77	4,460	1.32
Maintenance of Electric Plant	2,576	1.36	3,372	.99	1,264	.46	1,841	.55
Maintenance of Miscellaneous Steam Plant	133	.07	41	.01	3	.00	275	.08
Total, Exclusive of Fuel	10,106	5.33	34,186	10.00	6,720	2.43	11,860	3.53
Fuel	53,671	28.34	90,377	26.43	77,193	28.08	84,276	24.98
Total Production Expenses	63,778	33.70	124,563	36.43	83,913	30.52	96,136	28.49
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	786.9	64.90	0	0	660.8	49.74
Btu per Pound; Cents per Million Btu	0	0	13,283	244	0	0	13,008	191
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	64.90	0	0	0	49.74
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	3,002.4	17.71	2,081.0	17.80	3,665.0	18.48	2,038.0	18.12
Btu per Gallon; Cents per Million Btu	149,807	281	150,575	281	150,283	293	158,898	271
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	18.06	0	18.01	0	18.47	0	18.12
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	3,154.7	2.37	5,363.8	2.70
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	1,030	230	1,015	266
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	9,982		9,952		9,843		10,741	
Plant Hours Connected to Load	8,670		2,131		7,792		8,760	
Total Number of Units (Exclusive of Auxiliary Units)	2		3		1		3	
Condensing Water Supply	Long Isl. Sound		Long Isl. Sound		New Haven Harbor		Delaware River	
Average Number of Employees	77		200		64		180	
Type of Plant Construction	Conventional		Conventional		Conventional		Semi-OD	
Initial Year of Plant Operation	1960		1957		1975		1951	

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Delmarva Power & Light Co		Florida Power Corp					
Name of Plant	Indian River		Anclote		Crystal River		P L Bartow	
Region and Power Supply Area Location of Plant	I-05 Millsboro DE		III-24 Tarpon Springs FL		III-24 Red Level FL		III-24 St. Petersburg FL	
General Operating Characteristics								
Installed Generating Capacity (MW)	782.4		1,112.4		2,442.9		494.4	
Generation (million kWh)	4,306.2		3,297.4		14,930.0		1,512.7	
Plant Factor Based on Nameplate Rating (percent)	63		34		70		35	
Net Peak Demand on Plant - 60 Minutes (MW)	746.0		966.0		1,861.0		449.0	
Net Continuous Plant Capability								
Winter Capability (MW)	757.0		1,039.0		2,276.0		442.0	
Summer Capability (MW)	752.0		973.0		2,234.0		434.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	3,905		1,037		1,769		1,894	
Structures and Improvements	61,123		32,247		188,280		13,408	
Equipment	295,059		184,246		876,317		58,279	
Total	360,087		217,530		1,066,366		73,580	
Cost per kW of Installed Capacity (dollars)	460		196		437		149	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	196	0.05	448	0.14	1,638	0.11	374	0.25
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	1,705	.40	1,172	.36	2,034	.14	1,075	.71
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	-190	-.01	0	.00
Electric Expenses	1,537	.36	625	.19	1,481	.10	581	.38
Miscellaneous Steam Power Expenses	1,320	.31	1,916	.58	6,257	.42	1,503	.99
Rents	4	.00	32	.01	95	.01	30	.02
Maintenance Expenses								
Maintenance Supervision and Engineering	217	.05	987	.30	3,061	.21	901	.60
Maintenance of Structures	548	.13	97	.03	1,178	.08	153	.10
Maintenance of Boiler Plant	7,007	1.63	1,894	.57	11,199	.75	1,915	1.27
Maintenance of Electric Plant	2,944	.68	1,790	.54	4,388	.29	969	.64
Maintenance of Miscellaneous Steam Plant	732	.17	495	.15	1,524	.10	403	.27
Total, Exclusive of Fuel	16,210	3.76	9,458	2.87	32,863	2.20	7,904	5.23
Fuel	89,574	20.79	96,701	29.33	303,931	20.36	42,360	28.00
Total Production Expenses	105,785	24.56	106,158	32.19	336,594	22.54	50,264	33.23
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	1,792.5	49.00	0	0	5,720.7	52.71	0	0
Btu per Pound; Cents per Million Btu	13,117	[illegible]	0	0	12,476	211	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	49.00	0	0	0	51.99	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	75.4	22.34	5,302.5	18.24	105.1	23.01	2,363.9	16.72
Btu per Gallon; Cents per Million Btu	140,863	377	151,324	287	140,024	391	150,349	264
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	22.34	0	18.32	0	24.03	0	16.96
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	826.5	3.44
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	1,023	336
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	11,019		10,220		9,802		10,467	
Plant Hours Connected to Load	8,760		8,098		8,750		7,440	
Total Number of Units (Exclusive of Auxiliary Units)	4		2		4		3	
Condensing Water Supply	Indian River		Gulf of Mexico		Gulf of Mexico		Tampa Bay	
Average Number of Employees	194		83		354		87	
Type of Plant Construction	Conventional		Conventional		Conv-PWR		Conventional	
Initial Year of Plant Operation	1957		1974		1966		1958	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Florida Power & Light Co							
Name of Plant	Cape Canaveral		Fort Myers		Manatee		Martin	
Region and Power Supply Area	III-24		III-24		III-24		III-24	
Location of Plant	Cocoa FL		Fort Myers FL		Manatee County FL		Indiantown FL	
General Operating Characteristics								
Installed Generating Capacity (MW)	804.1		558.3		1,726.6		1,726.6	
Generation (million kWh)	2,592.2		2,056.6		4,011.2		3,534.0	
Plant Factor Based on Nameplate Rating (percent)	37		42		27		23	
Net Peak Demand on Plant - 60 Minutes (MW)	753.0		520.0		1,598.0		1,472.0	
Net Continuous Plant Capability								
Winter Capability (MW)	740.0		508.0		1,580.0		1,580.0	
Summer Capability (MW)	734.0		504.0		1,566.0		1,566.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	729		1,027		3,862		8,525	
Structures and Improvements	10,518		10,368		89,758		251,138	
Equipment	61,463		50,185		271,900		426,694	
Total	72,710		61,579		365,519		686,357	
Cost per kW of Installed Capacity (dollars)	90		110		212		398	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	507	0.20	266	0.13	373	0.09	405	0.11
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	577	.22	737	.36	1,184	.30	896	.25
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	497	.19	337	.16	580	.14	820	.23
Miscellaneous Steam Power Expenses	1,439	.56	1,601	.78	2,079	.52	1,878	.53
Rents	14	.01	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	1,030	.40	842	.41	1,184	.30	1,145	.32
Maintenance of Structures	337	.13	445	.22	873	.22	554	.16
Maintenance of Boiler Plant	3,339	1.29	2,741	1.33	4,405	1.10	3,945	1.12
Maintenance of Electric Plant	1,769	.68	1,523	.74	3,164	.79	2,520	.71
Maintenance of Miscellaneous Steam Plant	512	.20	534	.26	757	.19	754	.21
Total, Exclusive of Fuel	10,021	3.88	9,026	4.39	14,599	3.65	12,917	3.64
Fuel	72,454	27.95	55,281	26.88	114,291	28.49	105,420	29.83
Total Production Expenses	82,475	31.82	64,307	31.27	128,890	32.14	118,337	33.49
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	769.4	17.00	3,087.1	17.91	6,387.4	17.89	2,464.2	18.74
Btu per Gallon; Cents per Million Btu	150,952	268	151,500	281	151,333	282	150,523	296
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	17.00	0	17.91	0	17.89	0	18.74
Gas Burned (MMcf); Cost per Mcf (dollars)	21,804.9	2.72	0	0	0	0	21,948.0	2.70
Btu per Cubic Foot; Cents per Million Btu	1,000	272	0	0	0	0	1,000	270
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	10,294		9,552		10,122		10,619	
Plant Hours Connected to Load	7,511		7,341		6,862		6,745	
Total Number of Units (Exclusive of Auxiliary Units)	2		2		2		2	
Condensing Water Supply	Indian River		Caloosahatchee River		Closed Cooling Pond		Closed Cooling Pond	
Average Number of Employees	129		143		148		152	
Type of Plant Construction	Full-Outdoor		Conventional		Full-Outdoor		Full-Outdoor	
Initial Year of Plant Operation	1965		1958		1976		1980	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Florida Power & Lignt Co			
Name of Plant	Port Everglades	Putnam [1]	Riviera	Sanford
Region and Power Supply Area Location of Plant	III-24 Port Everglades FL	III-24 Palatka FL	III-24 Riviera FL	III-24 Sanford FL
General Operating Characteristics				
Installed Generating Capacity (MW)	1,254.6	580.0	595.8	1,028.5
Generation (million kWh)	5,096.2	2,047.3	1,674.4	295.5
Plant Factor Based on Nameplate Rating (percent)	46	40	27	3
Net Peak Demand on Plant - 60 Minutes (MW)	1,167.0	522.0	558.0	716.0
Net Continuous Plant Capability				
Winter Capability (MW)	1,148.0	540.0	619.0	871.0
Summer Capability (MW)	1,142.0	472.0	613.0	691.0
Historical Plant Cost (thousand dollars)				
Land and Land Rights	306	38	152	2,051
Structures and Improvements	14,448	16,171	6,928	25,667
Equipment	117,943	99,527	57,154	110,269
Total	132,697	115,736	64,234	137,987
Cost per kW of Installed Capacity (dollars)	106	200	92	134

Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	447	0.09	260	0.13	154	0.27	684	2.31
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	1,192	.23	716	.35	680	.41	716	2.42
Steam from Other Sources	0	.00	1,521	.74	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	0	.00	0	.00	470	.28	429	1.45
Miscellaneous Steam Power Expenses	2,959	.58	3	.00	1,367	.82	1,496	5.06
Rents	0	.00	0	.00	3	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	2,035	.40	1,065	.52	1,134	.68	1,061	3.59
Maintenance of Structures	324	.06	538	.26	100	.06	933	3.16
Maintenance of Boiler Plant	5,752	1.13	0	.00	4,983	2.98	2,713	9.18
Maintenance of Electric Plant	3,201	.63	2,440	1.19	974	.58	1,691	5.72
Maintenance of Miscellaneous Steam Plant	1,293	.25	484	.24	406	.24	383	1.23
Total, Exclusive of Fuel	17,203	3.37	7,027	3.43	10,571	6.32	10,086	34.12
Fuel	143,938	28.24	54,573	26.66	47,968	28.65	9,708	32.85
Total Production Expenses	161,141	31.62	61,602	30.09	58,539	34.97	19,794	66.99

Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	4,255.1	18.17	7.6	38.46	347.4	16.85	394.9	17.04
Btu per Gallon; Cents per Million Btu	151,261	286	138,595	661	152,071	264	152,238	266
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	18.17	0	38.46	0	16.85	0	17.04
Gas Burned (MMcf); Cost per Mcf (dollars)	25,130.2	2.65	20,094.7	2.70	15,706.7	2.68	1,084.7	2.75
Btu per Cubic Foot; Cents per Million Btu	1,000	265	1,000	270	1,000	268	1,000	275
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0

Plant Characteristics				
Average Btu per kWh Net Generation	10,236	9,837	10,706	12,216
Plant Hours Connected to Load	8,410	7,391	6,952	1,586
Total Number of Units (Exclusive of Auxiliary Units)	4	2	4	3
Condensing Water Supply	Atlantic Ocean	St. Johns River	Lake Worth	St John's River
Average Number of Employees	260	119	128	135
Type of Plant Construction	Full-Outdoor	Conventional	Full-Outdoor	Full-Outdoor
Initial Year of Plant Operation	1960	1977	1953	1926

[1] Combined cycle.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Florida Power & Light Co	Gulf Power Co		
Name of Plant	Turkey Point	Crist	Scholtz	Smith
Region and Power Supply Area Location of Plant	III-24 Florida City FL	III-22 Pensacola FL	III-22 Sneads FL	III-22 Panama City FL
General Operating Characteristics				
Installed Generating Capacity (MW)	804.1	1,229.0	98.0	340.0
Generation (million kWh)	3,541.0	5,317.2	672.2	2,478.7
Plant Factor Based on Nameplate Rating (percent)	50	49	78	83
Net Peak Demand on Plant - 60 Minutes (MW)	760.0	1,055.0	104.0	354.0
Net Continuous Plant Capability				
Winter Capability (MW)	740.0	1,097.1	93.1	355.7
Summer Capability (MW)	734.0	1,097.1	93.1	355.7
Historical Plant Cost (thousand dollars)				
Land and Land Rights	2,187	1,799	45	201
Structures and Improvements	9,672	54,315	5,265	16,521
Equipment	63,338	240,819	21,705	64,585
Total	75,196	296,933	27,015	81,308
Cost per kW of Installed Capacity (dollars)	94	242	277	239

Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	526	0.15	467	0.09	188	0.28	891	0.36
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	963	.27	1,697	.32	477	.71	439	.18
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	123	.03	2,982	.56	392	.58	499	.20
Miscellaneous Steam Power Expenses	1,816	.51	1,451	.27	520	.77	578	.23
Rents	0	.00	1	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	1,230	.35	959	.18	217	.32	443	.18
Maintenance of Structures	1,279	.36	1,499	.28	175	.26	258	.10
Maintenance of Boiler Plant	8,113	2.29	11,353	2.14	783	1.17	1,060	.43
Maintenance of Electric Plant	1,559	.44	1,988	.37	879	1.31	317	[illegible]
Maintenance of Miscellaneous Steam Plant	772	.22	1,024	.19	421	.63	271	.11
Total, Exclusive of Fuel	16,381	4.62	23,421	4.40	4,052	6.03	4,756	1.92
Fuel	98,132	27.71	104,474	19.65	11,023	16.40	49,055	19.79
Total Production Expenses	114,512	32.34	127,897	24.05	15,075	22.42	53,810	21.71

Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	2,329.9	44.17	318.4	34.60	1,047.1	46.73
Btu per Pound; Cents per Million Btu	0	0	11,981	185	12,330	140	12,103	193
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	42.14	0	33.87	0	43.03
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	2,219.9	17.52	[1] 9.3	20.68	.4	21.62	5.4	22.63
Btu per Gallon; Cents per Million Btu	151,680	275	136,995	0	137,113	375	136,994	393
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	17.52	0	21.79	0	22.96	0	22.72
Gas Burned (MMcf); Cost per Mcf (dollars)	21,519.3	2.75	826.2	1.65	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	1,000	275	1,000	165	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0

Plant Characteristics				
Average Btu per kWh Net Generation	10,071	10,665	11,683	10,238
Plant Hours Connected to Load	8,287	NR	NR	NR
Total Number of Units (Exclusive of Auxiliary Units)	2	7	2	2
Condensing Water Supply	Atlantic Ocean	Escambia River	Apalachicola River	North Bay
Average Number of Employees	131	237	65	68
Type of Plant Construction	Conv-PWR	Conventional	Conventional	Conventional
Initial Year of Plant Operation	1967	1945	1953	1965

---

[1] Used for starting and flame stabilizing purposes.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Orlando Utilities Commission		Tampa Electric Co				Georgia Power Co	
Name of Plant	Stanton Energy		Big Bend		F J Gannon		Bowen	
Region and Power Supply Area Location of Plant	III-24 Orange County FL		III-24 Tampa FL		III-24 Tampa FL		III-23 Barton County GA	
General Operating Characteristics								
Installed Generating Capacity (MW)	464.6		1,822.5		1,270.4		3,499.0	
Generation (million kWh)	619.0		10,085.8		6,174.2		21,503.8	
Plant Factor Based on Nameplate Rating (percent)	15		63		55		70	
Net Peak Demand on Plant - 60 Minutes (MW)	NR		1,614.0		1,104.0		3,144.0	
Net Continuous Plant Capability								
Winter Capability (MW)	0		1,559.0		1,104.0		3,075.2	
Summer Capability (MW)	0		1,559.0		1,104.0		3,075.2	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	0		5,147		350		1,183	
Structures and Improvements	446,280		143,425		28,212		66,957	
Equipment	0		794,525		178,620		514,620	
Total	446,280		943,097		207,181		582,760	
Cost per kW of Installed Capacity (dollars)	961		517		163		167	
Power Production Expenses								
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	477	0.77	1,843	0.18	1,345	0.22	2,017	0.09
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	592	.96	5,868	.58	2,240	.36	3,206	.15
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	133	.21	1,912	.19	1,138	.18	1,546	.07
Miscellaneous Steam Power Expenses	99	.16	3,900	.39	2,615	.42	6,905	.32
Rents	403	.65	18	.00	0	.00	1	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	0	.00	1,108	.11	766	.12	1,820	.08
Maintenance of Structures	70	.11	1,686	.17	1,469	.24	3,067	.14
Maintenance of Boiler Plant	653	1.06	15,168	1.50	10,659	1.73	30,227	1.41
Maintenance of Electric Plant	182	.29	3,933	.39	3,706	.60	8,141	.38
Maintenance of Miscellaneous Steam Plant	138	.22	719	.07	438	.07	1,462	.07
Total, Exclusive of Fuel	2,747	4.43	36,155	3.58	24,376	3.94	58,392	2.71
Fuel	10,196	16.47	196,159	19.45	142,706	23.11	335,705	15.61
Total Production Expenses	12,943	20.91	232,314	23.03	167,082	27.06	394,096	18.33
Fuel Used								
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	199.2	53.87	4,360.1	44.99	2,543.7	56.10	8,253.2	40.59
Btu per Pound; Cents per Million Btu	14,067	191	11,455	196	12,646	222	12.223	166
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	51.74	0	43.56	0	55.96	0	40.59
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	23.7	19.12	0	0	0	0	24.2	29.82
Btu per Gallon; Cents per Million Btu	143,762	317	0	0	0	0	139,000	511
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	NR	0	0	0	0	0	29.82
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	9,286		9,905		10.420		9,389	
Plant Hours Connected to Load	NR		8,760		8,760		8,760	
Total Number of Units (Exclusive of Auxiliary Units)	-		3		6		4	
Condensing Water Supply	Artificial Lake		Tampa Bay		Tampa Bay		Etowah River	
Average Number of Employees	107		441		340		611	
Type of Plant Construction	Conventional		Conventional		Outdoor Boiler		Conventional	
Initial Year of Plant Operation	1987		1970		1957		1971	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Georgia Power Co							
Name of Plant	Hammond		Harllee Branch		Jack McDonough		Wansley	
Region and Power Supply Area Location of Plant	III-23 Rome GA		III-23 Milledgeville GA		III-23 Smyrna GA		III-23 Herd&Carrol CountiesGA	
General Operating Characteristics								
Installed Generating Capacity (MW)	953.0		1,746.0		506.0		1,904.0	
Generation (million kWh)	3,958.8		9,852.4		3,480.3		11,194.0	
Plant Factor Based on Nameplate Rating (percent)	47		64		66		67	
Net Peak Demand on Plant - 60 Minutes (MW)	805.0		1,529.0		517.0		1,716.0	
Net Continuous Plant Capability								
Winter Capability (MW)	804.5		1,517.5		506.5		1,729.9	
Summer Capability (MW)	804.5		1,517.5		506.5		1,729.9	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	738		1,044		650		2,210	
Structures and Improvements	22,359		40,029		13,777		112,340	
Equipment	128,952		288,755		84,017		404,320	
Total	152,050		329,828		98,444		518,870	
Cost per kW of Installed Capacity (dollars)	160		189		165		273	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1,057	0.27	1,624	0.16	661	0.19	1,360	0.12
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	1,445	.37	2,033	.21	1,116	.32	1,745	.16
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	1,086	.27	1,131	.11	491	.14	547	.05
Miscellaneous Steam Power Expenses	2,348	.59	3,441	.35	1,715	.49	3,269	.29
Rents	0	.00	4	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	827	.21	1,449	.15	445	.13	933	.08
Maintenance of Structures	1,231	.31	3,136	.32	1,614	.46	1,447	.13
Maintenance of Boiler Plant	7,691	1.94	15,805	1.60	7,075	2.03	14,306	1.28
Maintenance of Electric Plant	3,113	.79	3,388	.34	1,908	.55	2,435	.22
Maintenance of Miscellaneous Steam Plant	1,336	.34	627	.06	515	.15	773	.07
Total, Exclusive of Fuel	20,136	5.09	32,638	3.30	15,540	4.46	26,815	2.40
Fuel	84,601	21.37	170,695	17.33	60,218	17.30	198,696	17.75
Total Production Expenses	104,736	26.46	203,334	20.64	75,758	21.77	225,511	20.15
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	2,007.4	42.05	3,941.0	43.24	1,458.2	41.18	4,650.4	42.63
Btu per Pound; Cents per Million Btu	12,702	165	12,365	175	11,593	178	11,430	186
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	42.05	0	43.24	0	41.18	0	42.63
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	8.2	23.52	12.0	23.94	3.1	31.92	17.4	26.46
Btu per Gallon; Cents per Million Btu	139,000	401	139,000	413	139,000	544	139,000	456
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	23.52	0	23.94	0	31.92	0	26.46
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	26.0	2.66	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	1,028	259	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	12,894		9,899		9,728		9,507	
Plant Hours Connected to Load	8,760		8,760		8,760		8,760	
Total Number of Units (Exclusive of Auxiliary Units)	4		4		2		2	
Condensing Water Supply	Coosa River		Lake Sinclair		Chattahoochee Rv		Reservoir/CT	
Average Number of Employees	314		503		155		362	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1954		1965		1963		1976	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Georgia Power Co		Hawaii Electric Light Co Inc		Hawaiian Electric Co Inc		Maui Electric Co Ltd	
Name of Plant	Yates		W H Hill		Kahe		Kahului	
Region and Power Supply Area	III-23		X-50		X-50		X-50	
Location of Plant	Whitesburg GA		Honolulu HI		Honolulu HI		Kahului HI	
General Operating Characteristics								
Installed Generating Capacity (MW)	1,488.0		37.1		610.0		34.9	
Generation (million kWh)	6,935.6		232.6		4,018.9		242.0	
Plant Factor Based on Nameplate Rating (percent)	53		72		75		79	
Net Peak Demand on Plant - 60 Minutes (MW)	1,241.0		37.1		591.0		36.0	
Net Continuous Plant Capability								
Winter Capability (MW)	1,249.5		37.1		581.0		37.6	
Summer Capability (MW)	1,249.5		37.1		581.0		37.6	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	1,159		0		0		124	
Structures and Improvements	31,874		2,937		0		2,442	
Equipment	241,240		12,616		0		16,059	
Total	274,273		15,553		0		18,625	
Cost per kW of Installed Capacity (dollars)	184		419		0		534	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1,494	0.22	306	1.32	437	0.11	87	0.36
Coolants and Water	2,909	.42	0	.00	0	.00	0	.00
Steam Expenses	0	.00	570	2.45	1,592	.40	495	2.04
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	1,260	.18	333	1.43	1,428	.36	443	1.83
Miscellaneous Steam Power Expenses	3,535	.51	55	.24	659	.16	75	.31
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	1,454	.21	36	.15	828	.21	107	.44
Maintenance of Structures	2,194	.32	2	.01	234	.06	244	1.01
Maintenance of Boiler Plant	13,561	1.96	419	1.80	1,882	.47	716	2.96
Maintenance of Electric Plant	3,673	.53	137	.59	1,196	.30	230	.95
Maintenance of Miscellaneous Steam Plant	528	.08	34	.15	303	.08	33	.14
Total, Exclusive of Fuel	30,606	4.43	1,894	8.14	8,559	2.15	2,430	10.04
Fuel	139,339	20.09	8,141	35.00	136,478	33.96	8,756	36.18
Total Production Expenses	169,947	24.50	10,034	43.13	145,037	36.09	11,186	46.22
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	3,005.2	46.25	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	11,910	194	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	46.25	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	14.6	23.52	474.6	17.50	6,331.9	21.55	527.6	16.53
Btu per Gallon; Cents per Million Btu	139,000	403	150,523	277	149,571	343	150,524	261
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	23.52	0	17.26	0	21.55	0	NR
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	10,333		12,900		9,898		13,763	
Plant Hours Connected to Load	8,760		8,757		8,271		8,760	
Total Number of Units (Exclusive of Auxiliary Units)	7		2		6		4	
Condensing Water Supply	Chattahoochee River		Wells		Pacific Ocean		Pacific Ocean	
Average Number of Employees	468		18		NR		35	
Type of Plant Construction	Conventional		Conventional		Outdoor Boiler		Conventional	
Initial Year of Plant Operation	1950		1965		1963		1948	

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Central Illinois Light Co				Central Illinois Pub Serv Co			
Name of Plant	Duck Creek		E D Edwards		Coffeen		Newton	
Region and Power Supply Area Location of Plant	IV-40 Canton IL		IV-40 Burtonville IL		IV-40 Coffeen IL		IV-40 Newton IL	
General Operating Characteristics								
Installed Generating Capacity (MW)	441.0		779.8		1,005.0		1,235.0	
Generation (million kWh)	1,990.8		3,306.2		2,960.9		4,363.4	
Plant Factor Based on Nameplate Rating (percent)	52		48		34		40	
Net Peak Demand on Plant - 60 Minutes (MW)	370.0		692.0		773.0		1,120.0	
Net Continuous Plant Capability								
Winter Capability (MW)	366.0		740.0		880.0		1,116.0	
Summer Capability (MW)	366.0		740.0		880.0		1,115.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	6,659		688		1,199		7,103	
Structures and Improvements	100,183		49,538		40,696		111,075	
Equipment	143,381		136,241		197,116		563,573	
Total	250,223		186,467		239,012		681,751	
Cost per kW of Installed Capacity (dollars)	567		239		238		552	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	202	0.10	134	0.04	1,378	0.47	825	0.19
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	2,888	1.45	2,277	.69	2,952	1.00	8,199	1.88
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	473	.24	481	.15	633	.21	798	.18
Miscellaneous Steam Power Expenses	840	.42	1,047	.32	1,430	.48	1,365	.31
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	552	.28	409	.12	1,255	.42	778	.18
Maintenance of Structures	650	.33	499	.15	1,002	.34	809	.19
Maintenance of Boiler Plant	3,923	1.97	4,674	1.41	8,897	3.00	5,004	1.15
Maintenance of Electric Plant	692	.35	2,097	.63	789	.27	830	.19
Maintenance of Miscellaneous Steam Plant	220	.11	148	.04	489	.17	645	.15
Total, Exclusive of Fuel	10,440	5.25	11,766	3.55	18,825	6.36	19,253	4.42
Fuel	46,930	23.57	57,352	17.35	56,367	19.04	79,309	18.18
Total Production Expenses	57,370	28.82	69,117	20.91	75,192	25.40	98,562	22.59
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	975.3	47.96	1,281.0	44.63	1,528.5	36.66	1,986.3	39.67
Btu per Pound; Cents per Million Btu	10,555	228	12,918	173	10,504	175	11,573	172
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	47.61	0	43.37	0	37.69	0	38.02
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	6.5	23.42	7.4	23.97	12.2	26.79	21.7	23.37
Btu per Gallon; Cents per Million Btu	138,282	403	138,600	411	136,741	NR	136,760	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	24.77	0	24.45	0	24.86	0	23.86
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	10,362		10,023		10,869		10,565	
Plant Hours Connected to Load	7,499		8,760		6,908		8,613	
Total Number of Units (Exclusive of Auxiliary Units)	1		3		2		2	
Condensing Water Supply	Illinois River		Illinois River		Lake Coffeen/Art Lke		Lake	
Average Number of Employees	124		152		290		241	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1976		1960		1965		1977	

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Commonwealth Edison Co							
Name of Plant	Collins		Crawford		Joliet 9		Kinkaid	
Region and Power Supply Area Location of Plant	IV-14 Morris IL		IV-14 Chicago IL		IV-14 Joliet IL		IV-14 Kinkaid IL	
	General Operating Characteristics							
Installed Generating Capacity (MW)	2,650.0		598.0		1,660.0		1,319.0	
Generation (million kWh)	1,202.5		1,546.4		3,346.6		3,017.5	
Plant Factor Based on Nameplate Rating (percent)	5		30		23		26	
Net Peak Demand on Plant - 60 Minutes (MW)	2,088.0		516.0		1,109.0		1,072.0	
Net Continuous Plant Capability								
Winter Capability (MW)	2,696.0		542.0		1,327.0		1,108.0	
Summer Capability (MW)	2,698.0		532.0		1,310.0		1,108.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	6,792		3,142		229		5,871	
Structures and Improvements	134,993		30,952		98,281		40,653	
Equipment	554,123		96,021		216,245		252,490	
Total	695,908		130,115		314,755		299,013	
Cost per kW of Installed Capacity (dollars)	263		218		187		227	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1,854	1.54	1,753	1.13	2,851	0.85	1,613	0.53
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	2,478	2.06	1,594	1.03	3,147	.94	2,663	.88
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	1,837	1.53	1,215	.79	2,247	.67	722	.24
Miscellaneous Steam Power Expenses	1,280	1.06	2,098	1.36	3,576	1.07	2,351	.78
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	430	.36	564	.36	688	.21	768	.25
Maintenance of Structures	1,300	1.08	1,843	1.19	2,368	.71	2,209	.73
Maintenance of Boiler Plant	4,340	3.61	4,636	3.00	12,244	3.66	10,800	3.58
Maintenance of Electric Plant	2,496	2.08	1,351	.87	4,865	1.45	5,280	1.75
Maintenance of Miscellaneous Steam Plant	975	.81	1,230	.80	2,139	.64	854	.28
Total, Exclusive of Fuel	16,990	14.13	16,284	10.53	34,125	10.20	27,260	9.02
Fuel	82,345	68.48	63,013	40.75	129,906	38.82	53,400	17.70
Total Production Expenses	99,335	82.61	79,296	51.28	164,031	49.01	80,661	26.73
	Fuel Used							
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	[1] 874.1	71.69	[1] 1,885.4	67.97	[1] 1,660.7	32.12
Btu per Pound; Cents per Million Btu	0	0	9,417	376	9,638	357	10,344	155
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	54.25	0	57.98	0	30.23
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	[1] 3,119.0	26.40	0	0	0	0	0	0
Btu per Gallon; Cents per Million Btu	151,694	414	0	0	0	0	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	22.63	0	0	0	0	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	67.9	4.97	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	1,025	485	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
	Plant Characteristics							
Average Btu per kWh Net Generation	16,526		10,609		10,859		11,398	
Plant Hours Connected to Load	2,922		6,031		7,521		5,423	
Total Number of Units (Exclusive of Auxiliary Units)	5		2		5		2	
Condensing Water Supply	Collins Lake		Chicago SPS Canal		Des Plaines River		Lake Kinkaid	
Average Number of Employees	320		303		561		324	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1977		1958		1959		1967	

[1] Includes ignition fuel.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Commonwealth Edison Co						Electric Energy Inc	
Name of Plant	Powerton		Waukegan		Will County		Joppa	
Region and Power Supply Area Location of Plant	IV-14 Pekin IL		IV-14 Waukegan IL		IV-14 Lockport IL		IV-40 Joppa IL	
	General Operating Characteristics							
Installed Generating Capacity (MW)	1,786.0		803.0		1,269.0		1,100.0	
Generation (million kWh)	5,370.5		2,256.7		3,925.8		4,240.8	
Plant Factor Based on Nameplate Rating (percent)	34		32		35		44	
Net Peak Demand on Plant - 60 Minutes (MW)	1,396.0		719.0		1,076.0		1,020.0	
Net Continuous Plant Capability								
Winter Capability (MW)	1,400.0		725.0		1,092.0		1,014.0	
Summer Capability (MW)	1,400.0		725.0		1,060.0		1,014.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	3,499		554		526		174	
Structures and Improvements	111,294		57,364		62,873		41,350	
Equipment	456,277		143,573		214,475		161,860	
Total	571,070		201,490		277,875		203,383	
Cost per kW of Installed Capacity (dollars)	320		251		219		185	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1,836	0.34	1,663	0.74	2,307	0.59	469	0.12
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	4,081	.76	2,137	.95	2,031	.52	2,988	.70
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	1,453	.27	1,974	.87	1,807	.46	870	.21
Miscellaneous Steam Power Expenses	2,300	.43	2,221	.98	2,759	.70	1,013	.24
Rents	0	.00	0	.00	0	.00	16	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	161	.03	390	.17	855	.22	187	.04
Maintenance of Structures	1,769	.33	2,085	.92	1,662	.42	185	.04
Maintenance of Boiler Plant	10,298	1.92	7,404	3.28	8,735	2.22	7,558	1.78
Maintenance of Electric Plant	1,324	.25	947	.42	4,172	1.06	1,567	.37
Maintenance of Miscellaneous Steam Plant	1,686	.31	832	.37	1,625	.41	139	.03
Total, Exclusive of Fuel	24,888	4.64	19,653	8.70	25,953	6.60	15,012	3.53
Fuel	168,794	31.43	80,760	35.79	145,818	37.14	82,060	19.35
Total Production Expenses	193,682	36.06	100,412	44.50	171,770	43.75	97,073	22.89
	Fuel Used							
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	[1] 3,116.1	54.05	[1] 1,202.1	65.03	[1] 2,125.2	67.70	[2] 1,965.4	41.76
Btu per Pound; Cents per Million Btu	9,523	284	9,500	347	9,421	357	11,691	179
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	48.52	0	56.80	0	55.74	0	39.14
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	0	0	0	0
Btu per Gallon; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	203.4	3.54	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	1,022	346	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
	Plant Characteristics							
Average Btu per kWh Net Generation	11,075		10,300		10,386		10,692	
Plant Hours Connected to Load	8,309		6,671		8,421		8,760	
Total Number of Units (Exclusive of Auxiliary Units)	2		3		4		6	
Condensing Water Supply	Illinois River		Lake Michigan		Chicago S&S Canal		Ohio River	
Average Number of Employees	401		373		429		332	
Type of Plant Construction	Conventional		Conventional		Conventional		Full-Outdoor	
Initial Year of Plant Operation	1972		1952		1956		1951	

---

[1] Includes ignition fuel.

[2] Includes 1,646 equivalent tons of start-up oil and 26,179 tons of coal inventory adjustment.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Illinois Power Co		Commonwealth Edison Co Inc		Indiana & Michigan Electric Co			
Name of Plant	Baldwin		State Line		Rockport (2601)		Tanners Creek	
Region and Power Supply Area	IV-40		IV-14		II-12		II-12	
Location of Plant	Baldwin IL		Hammond IN		Rockport IN		Lawrenceburg IN	
	General Operating Characteristics							
Installed Generating Capacity (MW)	1,892.1		614.0		1,300.0		1,100.0	
Generation (million kWh)	9,819.8		1,935.6		4,665.0		2,969.0	
Plant Factor Based on Nameplate Rating (percent)	59		36		41		31	
Net Peak Demand on Plant - 60 Minutes (MW)	1,675.0		489.0		1,302.0		1,023.0	
Net Continuous Plant Capability								
Winter Capability (MW)	1,704.0		490.0		1,300.0		995.0	
Summer Capability (MW)	1,660.0		490.0		1,300.0		980.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	2,588		1,195		13,028		289	
Structures and Improvements	77,587		45,803		157,218		33,025	
Equipment	289,341		86,868		974,963		242,777	
Total	369,516		133,866		1,145,209		276,091	
Cost per kW of Installed Capacity (dollars)	195		218		881		251	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1,204	0.12	1,731	0.89	2,509	0.54	1,913	0.64
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	1,865	.19	2,245	1.16	1,021	.22	2,087	.70
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	1,131	.12	2,073	1.07	476	.10	892	.30
Miscellaneous Steam Power Expenses	1,726	.18	1,679	.87	3,475	.74	2,346	.79
Rents	36	.00	11	.01	84	.02	16	.01
Maintenance Expenses								
Maintenance Supervision and Engineering	1,310	.13	528	.27	1,228	.26	830	.28
Maintenance of Structures	578	.06	1,851	.96	618	.13	1,007	.34
Maintenance of Boiler Plant	13,972	1.42	4,505	2.33	4,318	.92	7,970	2.68
Maintenance of Electric Plant	3,039	.31	774	.40	1,476	.32	2,434	.82
Maintenance of Miscellaneous Steam Plant	532	.05	958	.50	869	.19	829	.28
Total, Exclusive of Fuel	25,413	2.58	16,355	8.46	16,074	3.44	20,324	6.84
Fuel	145,896	14.86	59,015	30.49	94,572	20.19	51,125	17.21
Total Production Expenses	171,308	17.45	75,369	38.94	110,646	23.62	71,450	24.06
	Fuel Used							
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	4,571.0	31.82	1,036.3	56.95	2,858.8	32.65	1,236.8	40.68
Btu per Pound; Cents per Million Btu	10,621	147	9,456	301	8,190	199	11,606	175
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	31.68	0	50.09	0	25.38	0	37.13
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	19.3	22.42	0	0	56.4	22.00	36.4	22.23
Btu per Gallon; Cents per Million Btu	140,000	381	0	0	136,591	383	139,087	381
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	23.42	0	0	0	22.14	0	23.56
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
	Plant Characteristics							
Average Btu per kWh Net Generation	10,086		10,125		10,062		9,738	
Plant Hours Connected to Load	8,760		6,388		6,290		7,331	
Total Number of Units (Exclusive of Auxiliary Units)	3		4		1		4	
Condensing Water Supply	Reservoir		Lake Michigan		Ohio River		Ohio River	
Average Number of Employees	267		323		304		332	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1970		1979		1984		1951	

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Indiana-Kentucky Electric Corp	Indianapolis Power & Light Co		
Name of Plant	Clifty Creek	Elmer W Stout	Perry K [1]	Petersburg
Region and Power Supply Area Location of Plant	II-12 Madison IN	II-12 Indianapolis IN	II-12 Indianapolis IN	II-12 Petersburg IN
General Operating Characteristics				
Installed Generating Capacity (MW)	1,303.5	851.9	46.6	1,873.0
Generation (million kWh)	10,027.2	2,429.6	[2] -14.5	9,170.8
Plant Factor Based on Nameplate Rating (percent)	88	33	-	56
Net Peak Demand on Plant - 60 Minutes (MW)	1,303.5	669.0	46.0	1,676.0
Net Continuous Plant Capability				
Winter Capability (MW)	1,277.8	720.0	49.0	1,662.0
Summer Capability (MW)	1,255.0	704.0	47.0	1,662.0
Historical Plant Cost (thousand dollars)				
Land and Land Rights	673	117	302	724
Structures and Improvements	38,225	26,757	6,478	135,447
Equipment	216,313	122,046	30,670	835,924
Total	255,212	148,919	37,450	972,095
Cost per kW of Installed Capacity (dollars)	196	175	804	519

Power Production Expenses	Clifty Creek $1,000	Clifty Creek Mills/kWh	Elmer W Stout $1,000	Elmer W Stout Mills/kWh	Perry K $1,000	Perry K Mills/kWh	Petersburg $1,000	Petersburg Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	586	0.06	659	0.27	169	0.00	1,509	0.16
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	2,488	.25	997	.41	193	.00	1,781	.19
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	1,659	.17	998	.41	557	.00	1,727	.19
Miscellaneous Steam Power Expenses	2,141	.21	923	.38	128	.00	5,309	.58
Rents	0	.00	98	.04	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	313	.03	444	.18	47	.00	1,072	.12
Maintenance of Structures	624	.06	608	.25	124	.00	347	.04
Maintenance of Boiler Plant	6,156	.61	3,091	1.27	147	.00	13,571	1.48
Maintenance of Electric Plant	1,430	.14	2,307	.95	57	.00	3,240	.35
Maintenance of Miscellaneous Steam Plant	389	.04	365	.15	61	.00	886	.10
Total, Exclusive of Fuel	15,786	1.57	10,490	4.31	1,513	.00	29,444	3.21
Fuel	106,691	10.64	34,393	14.16	[3] 11	.00	110,212	12.02
Total Production Expenses	122,477	12.21	44,883	18.47	1,525	.00	139,656	15.22

Fuel Used	Clifty Creek Amount	Clifty Creek Cost	Elmer W Stout Amount	Elmer W Stout Cost	Perry K Amount	Perry K Cost	Petersburg Amount	Petersburg Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	[4] 4,217.5	25.30	1,139.2	29.76	0.3	32.28	4,321.6	25.51
Btu per Pound; Cents per Million Btu	11,570	109	11,180	133	11,366	142	11,132	115
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	24.74	0	29.06	0	26.58	0	24.16
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	9.9	30.68	.8	21.59	26.9	22.15
Btu per Gallon; Cents per Million Btu	0	0	135,000	541	135,000	381	135,000	391
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	25.46	0	24.48	0	23.42
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0

Plant Characteristics	Clifty Creek	Elmer W Stout	Perry K	Petersburg
Average Btu per kWh Net Generation	9,733	10,499	-	10,508
Plant Hours Connected to Load	8,760	8,732	8,784	8,760
Total Number of Units (Exclusive of Auxiliary Units)	6	7	4	3
Condensing Water Supply	Ohio River	Wells/CT	River	White River
Average Number of Employees	393	128	150	327
Type of Plant Construction	Conventional	Conventional	Conventional	Conventional
Initial Year of Plant Operation	1955	1929	1892	1967

---

[1] Includes Perry W, Perry K&W are interconnected and operate as one unit.

[2] Installing new unit.

[3] Based on actual fuel expenses.

[4] Includes 581 equivalent tons of fuel oil.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Northern Indiana Pub Serv Co							
Name of Plant	Bailly		Dean H Mitchell		Michigan City		R M Schahfer	
Region and Power Supply Area Location of Plant	II-12 Dune Acres IN		II-12 Gary IN		II-12 Michigan City IN		II-12 Wheatfield IN	
General Operating Characteristics								
Installed Generating Capacity (MW)	615.0		529.0		661.0		1,618.0	
Generation (million kWh)	2,300.7		1,168.2		2,262.8		4,657.9	
Plant Factor Based on Nameplate Rating (percent)	43		25		39		29	
Net Peak Demand on Plant - 60 Minutes (MW)	521.0		470.0		580.0		1,483.0	
Net Continuous Plant Capability								
Winter Capability (MW)	480.0		485.0		589.0		1,591.0	
Summer Capability (MW)	480.0		485.0		589.0		1,591.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	142		1,012		597		3,967	
Structures and Improvements	47,317		25,674		41,909		326,634	
Equipment	170,721		100,763		161,981		1,140,649	
Total	218,181		127,449		204,487		1,471,250	
Cost per kW of Installed Capacity (dollars)	355		241		309		809	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	730	0.32	716	0.61	705	0.31	1,145	0.25
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	1,750	.76	1,476	1.26	2,209	.98	10,247	2.20
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	851	.37	1,060	.91	1,151	.51	2,356	.51
Miscellaneous Steam Power Expenses	2,577	1.12	1,907	1.63	2,035	.90	3,361	.72
Rents	0	.00	0	.00	1	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	831	.36	1,020	.87	971	.43	1,758	.38
Maintenance of Structures	806	.35	563	.48	795	.35	1,190	.26
Maintenance of Boiler Plant	10,867	4.72	5,242	4.49	7,847	3.47	9,896	2.12
Maintenance of Electric Plant	493	.21	624	.53	3,380	1.49	2,744	.59
Maintenance of Miscellaneous Steam Plant	507	.22	813	.70	700	.31	1,490	.32
Total, Exclusive of Fuel	19,412	8.43	13,421	11.48	19,794	8.75	34,187	7.35
Fuel	36,513	15.87	31,633	27.08	44,357	19.60	109,818	23.58
Total Production Expenses	55,925	24.31	45,053	38.56	64,153	28.35	144,005	30.92
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	943.4	36.00	555.7	55.40	1,080.7	40.40	2,260.3	48.19
Btu per Pound; Cents per Million Btu	11,546	157	11,200	248	11,125	182	11,276	215
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	33.72	0	42.25	0	36.92	0	44.47
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	0	0	22.2	36.54
Btu per Gallon; Cents per Million Btu	0	0	0	0	0	0	139,000	626
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	23.27
Gas Burned (MMcf); Cost per Mcf (dollars)	195.7	2.73	325.2	2.64	271.4	2.58	30.0	2.72
Btu per Cubic Foot; Cents per Million Btu	1,026	267	1,026	257	1,026	251	1,026	265
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	9,989		10,764		10,597		10,717	
Plant Hours Connected to Load	8,348		8,736		7,999		8,723	
Total Number of Units (Exclusive of Auxiliary Units)	2		4		3		3	
Condensing Water Supply	Lake Michigan		Lake Michigan		Lake Michigan		River/Deep Wells	
Average Number of Employees	198		212		209		438	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1962		1955		1929		1976	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Public Service Co of Indiana			
Name of Plant	Cayuga	Gibson	R Gallagher	Wabash River
Region and Power Supply Area Location of Plant	II-12 Cayuga IN	II-12 Princeton IN	II-12 New Albany IN	II-12 Terre Haute IN

General Operating Characteristics	Cayuga	Gibson	R Gallagher	Wabash River
Installed Generating Capacity (MW)	1,062.0	3,340.0	600.0	962.0
Generation (million kWh)	4,944.3	15,405.3	1,980.4	1,759.5
Plant Factor Based on Nameplate Rating (percent)	53	53	38	21
Net Peak Demand on Plant - 60 Minutes (MW)	989.0	3,007.0	571.0	801.0
Net Continuous Plant Capability				
Winter Capability (MW)	995.0	3,160.0	560.0	753.0
Summer Capability (MW)	985.0	3,140.0	560.0	753.0

Historical Plant Cost (thousand dollars)	Cayuga	Gibson	R Gallagher	Wabash River
Land and Land Rights	425	4,252	248	347
Structures and Improvements	36,295	226,026	26,033	30,321
Equipment	134,601	851,874	78,031	131,036
Total	171,321	1,082,152	104,312	161,703
Cost per kW of Installed Capacity (dollars)	181	324	174	168

Power Production Expenses	Cayuga $1,000	Cayuga Mills/kWh	Gibson $1,000	Gibson Mills/kWh	R Gallagher $1,000	R Gallagher Mills/kWh	Wabash River $1,000	Wabash River Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	884	0.18	2,945	0.19	1,364	0.69	1,405	0.80
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	1,165	.24	8,140	.53	963	.49	1,594	.91
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	-344	-.07	0	.00	0	.00	0	.00
Electric Expenses	640	.13	1,949	.13	952	.48	1,206	.69
Miscellaneous Steam Power Expenses	690	.14	2,151	.14	741	.37	838	.48
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	919	.19	3,167	.21	826	.42	912	.52
Maintenance of Structures	542	.11	2,045	.13	407	.21	687	.39
Maintenance of Boiler Plant	3,732	.75	18,648	1.21	2,632	1.33	4,284	2.43
Maintenance of Electric Plant	1,425	.29	4,028	.26	2,089	1.05	2,194	1.25
Maintenance of Miscellaneous Steam Plant	301	.06	1,435	.09	191	.10	178	.10
Total, Exclusive of Fuel	9,954	2.02	44,508	2.89	10,165	5.14	13,298	7.57
Fuel	72,644	14.69	235,661	15.30	30,238	15.27	28,571	16.24
Total Production Expenses	82,598	16.71	280,169	18.19	40,405	20.00	41,870	23.79

Fuel Used	Cayuga Amount	Cayuga Cost	Gibson Amount	Gibson Cost	R Gallagher Amount	R Gallagher Cost	Wabash River Amount	Wabash River Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	2,434.3	29.69	7,126.9	34.10	929.7	31.75	895.1	31.17
Btu per Pound; Cents per Million Btu	10,583	140	10,893	159	11,570	137	10,896	143
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	30.33	0	34.26	0	31.05	0	28.69
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	15.9	23.18	57.3	22.20	30.2	23.91	28.7	23.38
Btu per Gallon; Cents per Million Btu	137,000	403	137,000	386	137,000	416	137,000	407
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	24.73	0	23.26	0	24.38	0	23.94
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0

Plant Characteristics	Cayuga	Gibson	R Gallagher	Wabash River
Average Btu per kWh Net Generation	10,072	9,857	10,802	10,879
Plant Hours Connected to Load	8,752	8,760	8,173	7,841
Total Number of Units (Exclusive of Auxiliary Units)	2	5	4	6
Condensing Water Supply	Wabash River	Lake	Ohio River	Wabash River
Average Number of Employees	147	590	164	209
Type of Plant Construction	Conventional	Conventional	Conventional	Conventional
Initial Year of Plant Operation	1970	1975	1958	1953

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Richmond City of		Southern Indiana Gas & Elec Co		Cedar Falls City of		Interstate Power Co	
Name of Plant	Whitewater Valley		F B Culley		Streeter Station		Dubuque	
Region and Power Supply Area	II-12		II-12		IV-17		IV-17	
Location of Plant	Richmond IN		Yankeetown IN		Cedar Falls IA		Dubuque IA	
	General Operating Characteristics							
Installed Generating Capacity (MW)	97.5		414.9		51.5		81.3	
Generation (million kWh)	444.2		1,387.1		59.1		204.2	
Plant Factor Based on Nameplate Rating (percent)	52		38		13		29	
Net Peak Demand on Plant - 60 Minutes (MW)	91.7		361.0		-		78.0	
Net Continuous Plant Capability								
Winter Capability (MW)	93.0		397.0		52.0		78.0	
Summer Capability (MW)	93.0		397.0		52.0		78.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	66		332		427		54	
Structures and Improvements	1,687		15,745		3,164		2,238	
Equipment	18,751		79,984		11,881		14,544	
Total	20,503		96,061		15,472		16,835	
Cost per kW of Installed Capacity (dollars)	210		232		300		207	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	41	0.09	135	0.10	66	1.11	37	0.18
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	331	.75	729	.53	207	3.50	396	1.94
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	-8	-.04
Electric Expenses	346	.78	342	.25	176	2.98	291	1.42
Miscellaneous Steam Power Expenses	156	.35	505	.36	72	1.22	68	.33
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	39	.09	152	.11	63	1.07	34	.17
Maintenance of Structures	6	.01	318	.23	40	.68	144	.70
Maintenance of Boiler Plant	629	1.42	4,841	3.49	135	2.28	452	2.21
Maintenance of Electric Plant	444	1.00	2,188	1.58	109	1.85	339	1.66
Maintenance of Miscellaneous Steam Plant	5	.01	133	.10	4	.07	30	.15
Total, Exclusive of Fuel	1,997	4.50	9,343	6.75	872	14.76	1,783	8.72
Fuel	8,611	19.38	22,016	15.87	1,020	17.24	4,858	23.79
Total Production Expenses	10,608	23.90	31,358	22.61	1,892	32.00	6,639	32.52
	Fuel Used							
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	228.8	37.51	661.4	32.84	33.9	29.39	122.7	37.19
Btu per Pound; Cents per Million Btu	11,082	169	10,953	150	10,950	134	11,041	168
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	NR	0	33.66	0	27.78	0	37.46
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	.1	20.76	2.0	25.78	0	0	.4	24.29
Btu per Gallon; Cents per Million Btu	138,000	358	139,000	442	0	0	140,000	413
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	NR	0	26.19	0	0	0	23.45
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	19.9	2.78	6.6	3.34	29.1	2.18
Btu per Cubic Foot; Cents per Million Btu	0	0	1,025	271	1,000	334	1,000	218
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
	Plant Characteristics							
Average Btu per kWh Net Generation	11,433		10,467		12,679		13,428	
Plant Hours Connected to Load	8,760		8,760		NR		8,401	
Total Number of Units (Exclusive of Auxiliary Units)	2		3		-		3	
Condensing Water Supply	White River		Ohio River		Wells		Mississippi Rv	
Average Number of Employees	41		71		24		34	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1955		1955		1963		1904	

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	**Iowa Electric Light & Power Co**		**Iowa Power & Light Co**		**Iowa Public Service Co**		**Iowa Southern Utilities Co**	
Name of Plant	Sixth Street		Council Bluffs		George Neal [1]		Ottumwa	
Region and Power Supply Area	IV-17		IV-17		IV-17		IV-17	
Location of Plant	Cedar Rapids IA		Council Bluff IA		Salix IA		Chillicothe IA	
	General Operating Characteristics							
Installed Generating Capacity (MW)	85.0		856.8		1,686.0		725.8	
Generation (million kWh)	116.7		3,072.3		5,123.7		3,339.2	
Plant Factor Based on Nameplate Rating (percent)	16		41		35		53	
Net Peak Demand on Plant - 60 Minutes (MW)	72.0		829.0		1,537.0		678.0	
Net Continuous Plant Capability								
Winter Capability (MW)	73.0		789.0		1,535.0		675.0	
Summer Capability (MW)	85.0		796.0		1,535.0		675.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	140		1,226		1,069		1,680	
Structures and Improvements	3,201		93,606		69,284		76,937	
Equipment	16,656		273,639		463,392		297,023	
Total	19,997		368,471		533,746		375,639	
Cost per kW of Installed Capacity (dollars)	236		430		317		518	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	104	0.89	1,160	0.38	818	0.16	513	0.15
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	866	7.42	1,293	.42	2,106	.41	521	.16
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	409	3.51	1,043	.34	1,100	.21	835	.25
Miscellaneous Steam Power Expenses	310	2.66	1,620	.53	2,341	.46	717	.21
Rents	0	.00	676	.22	766	.15	23	.01
Maintenance Expenses								
Maintenance Supervision and Engineering	86	.74	634	.21	1,089	.21	151	.05
Maintenance of Structures	103	.88	412	.13	624	.12	71	.02
Maintenance of Boiler Plant	618	5.29	7,777	2.53	8,585	1.68	1,341	.40
Maintenance of Electric Plant	262	2.25	1,471	.48	3,140	.61	1,406	.42
Maintenance of Miscellaneous Steam Plant	109	.93	88	.03	16	.00	266	.08
Total, Exclusive of Fuel	2,867	24.57	16,174	5.27	20,565	4.01	5,844	1.75
Fuel	4,171	35.75	37,101	12.08	72,687	14.19	41,392	12.40
Total Production Expenses	7,039	60.33	53,274	17.34	93,251	18.20	47,238	14.15
	Fuel Used							
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	77.1	36.95	1,954.3	18.95	2,824.4	22.96	2,136.8	19.02
Btu per Pound; Cents per Million Btu	11,772	157	8,263	114	9,335	122	8,302	115
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	32.57	0	18.37	0	22.76	0	18.69
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	.9	28.39	17.2	20.19	30.6	22.87	9.2	22.83
Btu per Gallon; Cents per Million Btu	139,000	486	136,000	353	138,808	392	137,752	395
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	23.71	0	20.41	0	23.21	0	21.89
Gas Burned (MMcf); Cost per Mcf (dollars)	204.3	2.71	145.7	.77	1,290.6	1.60	0	0
Btu per Cubic Foot; Cents per Million Btu	1,026	264	998	772	988	161	0	0
Other Fuel-Cost per Unit; (see footnote)	[2] 20	36.09	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	11,772	153	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	19.75	0	0	0	0	0	0
	Plant Characteristics							
Average Btu per kWh Net Generation	21,618		10,560		10,225		10,644	
Plant Hours Connected to Load	8,760		6,650		5,745		7,176	
Total Number of Units (Exclusive of Auxiliary Units)	6		3		4		1	
Condensing Water Supply	Cedar Lake		Missouri River		Missouri River		Des Moines River	
Average Number of Employees	64		139		264		69	
Type of Plant Construction	Conventional		Outdoor Boiler		Conventional		Conventional	
Initial Year of Plant Operation	1888		1954		1964		1961	

[1] Did not operate from January to April 1987.

[2] Furfural, a chemical from Quaker Oats Co. consisting of ground corn cobs and oats in thousands of tons.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Iowa-Illinois Gas & Elec Co	Centel Corp	Coffeyville City of	Kansas Gas & Electric Co
Name of Plant	Louisa	Cimarron River [1]	Coffeyville	Gordon Evans
Region and Power Supply Area Location of Plant	IV-17 Muscatine IA	V-29 Liberal KS	V-29 Coffeyville KS	V-34 Witchita KS
General Operating Characteristics				
Installed Generating Capacity (MW)	738.1	65.0	80.1	539.3
Generation (million kWh)	3,217.4	.7	22.8	178.8
Plant Factor Based on Nameplate Rating (percent)	50	–	3	4
Net Peak Demand on Plant - 60 Minutes (MW)	663.0	54.0	36.1	64.6
Net Continuous Plant Capability				
Winter Capability (MW)	650.0	72.0	72.0	510.4
Summer Capability (MW)	650.0	72.0	72.0	510.4
Historical Plant Cost (thousand dollars)				
Land and Land Rights	3,241	11	0	226
Structures and Improvements	135,730	1,089	0	3,385
Equipment	455,378	8,003	0	41,069
Total	594,349	9,103	0	44,680
Cost per kW of Installed Capacity (dollars)	805	140	0	83

Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	489	0.15	100	133.31	30	1.31	85	0.47
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	2,028	.63	170	228.01	31	1.36	233	1.30
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	1,057	.33	178	237.86	148	6.52	263	1.47
Miscellaneous Steam Power Expenses	620	.19	28	37.70	127	5.59	166	.93
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	542	.17	22	28.93	0	.00	67	.38
Maintenance of Structures	217	.07	4	5.66	0	.00	91	.51
Maintenance of Boiler Plant	1,528	.47	56	75.00	73	3.23	557	3.11
Maintenance of Electric Plant	379	.12	76	102.11	76	3.33	412	2.30
Maintenance of Miscellaneous Steam Plant	305	.09	6	7.65	162	7.14	29	.16
Total, Exclusive of Fuel	7,165	2.22	640	856.29	647	28.48	1,903	10.63
Fuel	40,167	12.48	923	1235.61	[2] 1,057	46.47	4,411	24.67
Total Production Expenses	47,332	14.71	1,563	.00	1,705	75.00	6,313	35.30

Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	2,052.0	19.35	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	8,223	118	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	18.71	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	.2	32.12	0	0	0	0	0	0
Btu per Gallon; Cents per Million Btu	137,497	555	0	0	0	0	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	NP	0	0	0	0	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	142.0	2.54	364.4	2.53	335.3	1.63	2,072.1	2.13
Btu per Cubic Foot; Cents per Million Btu	1,028	247	1,130	224	1,000	163	978	218
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0

Plant Characteristics				
Average Btu per kWh Net Generation	10,546	–	14,375	11,336
Plant Hours Connected to Load	6,922	8,760	8,760	3,032
Total Number of Units (Exclusive of Auxiliary Units)	1	2	7	2
Condensing Water Supply	Wells	Wells/CT	Municipality	Arkansas River
Average Number of Employees	97	15	23	56
Type of Plant Construction	Conventional	Outdoor Boiler	Outdoor	Full-Outdoor
Initial Year of Plant Operation	1983	1963	1901	1961

[1] On standby. Includes gas turbine data.

[2] Includes transportation and fuel handling expenses.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Kansas Power & Light Co			Henderson City of
Name of Plant	Abilene	Jeffery Energy Cntr	Lawrence	Henderson Stat. One
Region and Power Supply Area Location of Plant	V-29 Abilene KS	V-29 St. Mary's KS	V-29 Lawrence KS	II-19 Henderson KY

General Operating Characteristics

	Abilene	Jeffery Energy Cntr	Lawrence	Henderson Stat. One
Installed Generating Capacity (MW)	77.5	2,160.0	613.4	40.6
Generation (million kWh)	5.9	11,820.4	1,300.7	19.9
Plant Factor Based on Nameplate Rating (percent)	1	62	24	6
Net Peak Demand on Plant - 60 Minutes (MW)	64.0	1,937.0	493.0	20.0
Net Continuous Plant Capability				
Winter Capability (MW)	68.0	2,016.0	528.0	46.0
Summer Capability (MW)	NR	2,016.0	528.0	46.0

Historical Plant Cost (thousand dollars)

	Abilene	Jeffery Energy Cntr	Lawrence	Henderson Stat. One
Land and Land Rights	67	3,331	403	
Structures and Improvements	555	219,239	15,826	0
Equipment	5,715	851,991	80,740	2,293
Total	6,336	1,074,561	96,969	8,652
Cost per kW of Installed Capacity (dollars)	82	497	158	10,945
				270

Power Production Expenses

	Abilene $1,000	Abilene Mills/kWh	Jeffery Energy Cntr $1,000	Jeffery Energy Cntr Mills/kWh	Lawrence $1,000	Lawrence Mills/kWh	Henderson Stat. One $1,000	Henderson Stat. One Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1	0.24	976	0.08	250	0.19	68	3.42
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	0	.00	3,654	.31	1,550	1.19	203	10.22
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	0	.00	1,889	.16	825	.63	208	10.45
Miscellaneous Steam Power Expenses	4	.69	2,095	.18	509	.39	171	8.59
Rents	0	.00	1	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	1	.10	1,120	.09	128	.10	0	.00
Maintenance of Structures	0	.00	379	.03	282	.22	8	.38
Maintenance of Boiler Plant	0	.00	9,206	.78	3,148	2.42	86	4.35
Maintenance of Electric Plant	54	9.15	2,369	.20	2,143	1.65	28	1.39
Maintenance of Miscellaneous Steam Plant	8	1.36	685	.06	297	.23	12	.60
Total, Exclusive of Fuel	68	11.54	22,374	1.89	9,132	7.02	784	39.40
Fuel	228	38.40	173,539	14.68	26,303	20.22	490	24.65
Total Production Expenses	297	49.96	195,913	16.57	35,435	27.24	1,273	64.06

Fuel Used

	Abilene Amount	Abilene Cost	Jeffery Energy Cntr Amount	Jeffery Energy Cntr Cost	Lawrence Amount	Lawrence Cost	Henderson Stat. One Amount	Henderson Stat. One Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	7,906.3	21.52	665.0	34.48	17.5	25.91
Btu per Pound; Cents per Million Btu	0	0	8,326	129	10,690	158	11,481	113
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	21.59	0	32.05	0	25.91
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	25.5	19.46	0	0	0	0
Btu per Gallon; Cents per Million Btu	0	0	155,000	300	0	0	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	17.51	0	0	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	97.9	2.22	0	0	516.3	2.36	0	0
Btu per Cubic Foot; Cents per Million Btu	994	223	0	0	1,014	232	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0

Plant Characteristics

	Abilene	Jeffery Energy Cntr	Lawrence	Henderson Stat. One
Average Btu per kWh Net Generation	16,380	11,152	11,874	20,219
Plant Hours Connected to Load	146	8,760	1,393	8,760
Total Number of Units (Exclusive of Auxiliary Units)	2	3	5	3
Condensing Water Supply	Smokey Hill River	Kansas River	Kansas Rv/ Wells/Ct	Wells
Average Number of Employees	NR	371	135	28
Type of Plant Construction	Conventional	Conv/Semi-OD	Conventional	Conventional
Initial Year of Plant Operation	1940	1978	1939	1951

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Kentucky Utilities Co						Kentucky Power Co	
Name of Plant	E W Brown		Ghent		Pineville		Big Sandy	
Region and Power Supply Area Location of Plant	II-19 Burgin KY		II-19 Ghent KY		II-19 Four Mile KY		II-10 Louisa KY	
General Operating Characteristics								
Installed Generating Capacity (MW)	740.0		2,226.0		38.0		1,096.8	
Generation (million kWh)	3,537.6		8,294.0		59.1		4,928.5	
Plant Factor Based on Nameplate Rating (percent)	55		43		18		51	
Net Peak Demand on Plant - 60 Minutes (MW)	673.0		1,974.0		37.0		1,075.0	
Net Continuous Plant Capability								
Winter Capability (MW)	677.0		2,017.0		34.0		1,060.0	
Summer Capability (MW)	666.0		1,992.0		33.0		1,060.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	143		2,566		51		1,077	
Structures and Improvements	15,838		104,858		2,236		24,755	
Equipment	97,348		647,600		6,037		162,846	
Total	113,330		755,023		8,325		188,678	
Cost per kW of Installed Capacity (dollars)	153		339		219		172	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	315	0.09	231	0.03	105	1.78	1,449	0.29
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	972	.27	1,726	.21	181	3.07	1,278	.26
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	743	.21	1,257	.15	377	6.39	556	.11
Miscellaneous Steam Power Expenses	236	.07	1,154	.14	49	.83	1,322	.27
Rents	0	.00	0	.00	0	.00	52	.01
Maintenance Expenses								
Maintenance Supervision and Engineering	485	.14	770	.09	91	1.55	865	.18
Maintenance of Structures	330	.09	903	.11	195	3.30	323	.07
Maintenance of Boiler Plant	2,942	.83	4,776	.58	214	3.63	8,270	1.68
Maintenance of Electric Plant	1,375	.39	2,355	.28	89	1.52	1,956	.40
Maintenance of Miscellaneous Steam Plant	252	.07	473	.06	16	.28	456	.09
Total, Exclusive of Fuel	7,650	2.16	13,645	1.65	1,317	22.35	16,527	3.36
Fuel	41,091	11.62	138,186	16.66	1,004	17.01	68,300	13.86
Total Production Expenses	48,742	13.80	151,831	18.30	2,323	39.34	84,826	17.21
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	1,574.4	26.10	3,507.9	39.39	32.9	30.52	1,962.9	34.41
Btu per Pound; Cents per Million Btu	11,813	109	12,148	162	12,741	119	11,861	145
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	25.01	0	38.71	0	29.88	0	33.19
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	0	0	30.8	24.34
Btu per Gallon; Cents per Million Btu	0	0	0	0	0	0	139,205	416
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	23.52
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	10,524		10,224		14,248		9,485	
Plant Hours Connected to Load	8,760		8,760		2,376		8,149	
Total Number of Units (Exclusive of Auxiliary Units)	3		4		1		2	
Condensing Water Supply	Dix Dam Reservoir		Ohio River		Cumberland River		Big Sandy Rv/CT	
Average Number of Employees	142		232		33		244	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1955		1973		1923		1963	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Louisville Gas & Electric Co				Owensboro City of		Tennessee Valley Authority	
Name of Plant	Cane Run		Mill Creek		Elmer Smith		Paradise	
Region and Power Supply Area Location of Plant	II-12 Louisville KY		II-12 Louisville KY		II-19 Owensboro KY		III-20 Drakesboro KY	
	General Operating Characteristics							
Installed Generating Capacity (MW)	791.6		1,717.2		415.0		2,558.2	
Generation (million kWh)	1,761.1		6,879.7		1,688.3		10,854.7	
Plant Factor Based on Nameplate Rating (percent)	25		46		46		48	
Net Peak Demand on Plant - 60 Minutes (MW)	638.0		1,491.0		426.0		2,265.0	
Net Continuous Plant Capability								
Winter Capability (MW)	676.0		1,455.0		399.0		2,364.0	
Summer Capability (MW)	676.0		1,455.0		399.0		2,264.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	678		728		835		2,600	
Structures and Improvements	35,507		113,200		NR		85,181	
Equipment	138,014		498,774		NR		814,509	
Total	174,199		612,702		NR		902,289	
Cost per kW of Installed Capacity (dollars)	220		357		NR		353	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	565	0.32	756	0.11	116	0.07	2,814	0.26
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	6,539	3.71	11,506	1.67	508	.30	6,549	.60
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	1,101	.62	2,069	.30	339	.20	1,138	.10
Miscellaneous Steam Power Expenses	3,062	1.74	3,038	.44	288	.17	3,834	.35
Rents	82	.05	91	.01	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	1,026	.58	1,347	.20	112	.07	1,216	.11
Maintenance of Structures	1,178	.67	1,117	.16	46	.03	775	.07
Maintenance of Boiler Plant	7,662	4.35	11,654	1.69	1,754	1.04	14,047	1.29
Maintenance of Electric Plant	1,032	.59	2,234	.32	1,250	.74	3,896	.36
Maintenance of Miscellaneous Steam Plant	718	.41	1,152	.17	73	.04	16	.00
Total, Exclusive of Fuel	22,965	13.04	34,964	5.07	4,486	2.66	34,285	3.14
Fuel	25,709	14.60	97,739	14.21	27,383	16.22	147,131	13.55
Total Production Expenses	48,672	27.64	132,702	19.29	31,868	18.87	181,415	16.71
	Fuel Used							
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	830.7	30.87	3,171.2	30.82	808.1	33.05	4,739.5	30.92
Btu per Pound; Cents per Million Btu	11,166	138	11,101	137	10,776	153	11,750	132
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	29.64	0	30.37	0	32.42	0	24.44
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	0	0	0	0
Btu per Gallon; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	25.1	2.58	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	1,025	252	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
	Plant Characteristics							
Average Btu per kWh Net Generation	10,626		10,365		10,377		10,280	
Plant Hours Connected to Load	7,556		8,760		NR		8,760	
Total Number of Units (Exclusive of Auxiliary Units)	4		4		2		3	
Condensing Water Supply	Ohio River		Ohio River		Ohio River		Green River	
Average Number of Employees	329		567		NR		735	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1954		1972		1964		1963	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Tennessee Valley Authority		Central Louisiana Electric Co					
Name of Plant	Shawnee		Dolet Hills		Rodemacher		Teche	
Region and Power Supply Area	III-20		V-35		V-35		V-35	
Location of Plant	Paducah KY		De Soto LA		Lena LA		Baldwin LA	
General Operating Characteristics								
Installed Generating Capacity (MW)	1,750.0		720.8		1,003.5		427.9	
Generation (million kWh)	5,732.9		2,896.0		3,072.3		1,483.3	
Plant Factor Based on Nameplate Rating (percent)	37		46		35		40	
Net Peak Demand on Plant - 60 Minutes (MW)	1,466.0		687.5		928.0		356.0	
Net Continuous Plant Capability								
Winter Capability (MW)	1,550.0		640.0		963.0		430.0	
Summer Capability (MW)	1,510.0		640.0		963.0		430.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	505		4,072		1,948		110	
Structures and Improvements	51,978		99,858		62,120		4,046	
Equipment	298,021		433,907		274,007		37,307	
Total	350,503		537,837		338,075		41,464	
Cost per kW of Installed Capacity (dollars)	200		746		337		97	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1,935	0.34	443	0.15	288	0.09	295	0.20
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	3,278	.57	1,561	.54	694	.23	250	.17
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	1,316	.23	618	.21	530	.17	195	.13
Miscellaneous Steam Power Expenses	2,510	.44	1,821	.63	534	.17	151	.10
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
[illegible]ntenance Supervision and Engineering	693	.12	320	.11	216	.07	126	.09
Maintenance of Structures	853	.15	21	.01	563	.18	29	.02
Maintenance of Boiler Plant	6,451	1.13	2,203	.76	1,748	.57	533	.36
Maintenance of Electric Plant	6,002	1.05	886	.31	328	.11	708	.48
Maintenance of Miscellaneous Steam Plant	-813	-.14	109	.04	335	.11	160	.11
Total, Exclusive of Fuel	22,225	3.89	7,982	2.76	5,236	1.70	2,456	1.66
Fuel	85,658	14.94	39,086	13.50	71,764	23.36	29,234	19.71
Total Production Expenses	107,884	18.82	47,069	16.25	76,999	25.06	31,690	21.36
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	2,383.1	35.72	2,247.2	17.18	1,910.8	29.90	0	0
Btu per Pound; Cents per Million Btu	12,350	145	6,882	124	8,503	176	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	34.18	0	16.90	0	29.36	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	0	0	0	0
Btu per Gallon; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	195.1	2.48	7,122.3	1.91	14,457.3	2.02
Btu per Cubic Foot; Cents per Million Btu	0	0	1,029	241	1,027	186	1,045	193
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	10,290		10,750		12,957		10,189	
Plant Hours Connected to Load	8,760		6,891		7,450		7,159	
Total Number of Units (Exclusive of Auxiliary Units)	10		-		2		3	
Condensing Water Supply	Ohio River		Toledo Bend Lake		Cooling Pond		Canal	
Average Number of Employees	405		311		103		38	
Type of Plant Construction	Conventional		Outdoor Boiler		Full-Outdoor		Full-Outdoor	
Initial Year of Plant Operation	1953		1986		1975		1953	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Gulf States Utilities Co		Louisiana Power & Light Co	
Name of Plant	R S Nelson	Willow Glen	Little Gypsy	Nine Mile Point
Region and Power Supply Area Location of Plant	V-35 Westlake LA	V-35 St. Gabriel LA	V-25 Muntz LA	V-25 Westwego LA
General Operating Characteristics				
Installed Generating Capacity (MW)	1,596.8	2,177.8	1,251.0	1,917.0
Generation (million kWh)	5,107.7	3,272.1	3,162.1	4,580.0
Plant Factor Based on Nameplate Rating (percent)	37	17	29	27
Net Peak Demand on Plant - 60 Minutes (MW)	1,249.0	1,298.0	1,197.0	1,654.0
Net Continuous Plant Capability				
Winter Capability (MW)	1,396.0	1,894.0	1,253.0	1,827.0
Summer Capability (MW)	1,396.0	1,894.0	1,253.0	1,827.0
Historical Plant Cost (thousand dollars)				
Land and Land Rights	2,203	2,068	842	405
Structures and Improvements	127,078	45,231	7,401	11,624
Equipment	600,844	307,287	91,882	167,824
Total	730,125	354,586	100,125	179,853
Cost per kW of Installed Capacity (dollars)	457	163	80	94

Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	755	0.15	327	0.10	193	0.06	218	0.05
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	2,037	.40	1,552	.47	589	.19	945	.21
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	1,958	.38	568	.17	520	.18	738	.16
Miscellaneous Steam Power Expenses	2,226	.44	1,749	.53	1,246	.39	2,109	.46
Rents	0	.00	0	.00	1	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	752	.15	622	.19	82	.03	603	.13
Maintenance of Structures	1,086	.21	1,296	.40	220	.07	427	.09
Maintenance of Boiler Plant	5,896	1.15	2,339	.71	2,904	.92	3,925	.86
Maintenance of Electric Plant	1,426	.28	1,679	.51	3,134	.99	4,001	.87
Maintenance of Miscellaneous Steam Plant	506	.10	439	[illegible]	63	.02	241	.05
Total, Exclusive of Fuel	16,642	3.26	10,571	3.21	8,952	2.83	13,205	2.88
Fuel	98,424	19.27	57,840	17.68	35,914	11.36	77,091	16.83
Total Production Expenses	115,067	22.53	68,411	20.91	44,866	14.19	90,296	19.72

Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	1,893.8	33.65	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	8,415	200	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	33.65	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	22.6	16.83	22.3	24.35	2.0	18.66	7.3	110.12
Btu per Gallon, Cents per Million Btu	140,145	286	147,536	393	143,465	310	148,270	177
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	16.83	0	24.35	0	18.66	0	110.12
Gas Burned (MMcf); Cost per Mcf (dollars)	21,242.1	1.68	32,513.4	1.76	33,026.5	1.04	47,719.3	1.56
Btu per Cubic Foot; Cents per Million Btu	1,054	157	1,059	166	1,027	101	1,036	150
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0

Plant Characteristics	R S Nelson	Willow Glen	Little Gypsy	Nine Mile Point
Average Btu per kWh Net Generation	10,649	10,562	10,715	10,803
Plant Hours Connected to Load	5,572	7,319	8,760	8,760
Total Number of Units (Exclusive of Auxiliary Units)	5	5	3	5
Condensing Water Supply	Wells/CT	Mississippi Rv	Mississippi Rv	Mississippi Rv
Average Number of Employees	175	206	900	122
Type of Plant Construction	Full-Outdoor	Full-Outdoor	Full-Outdoor	Full-Outdoor
Initial Year of Plant Operation	1959	1960	1961	1951

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Louisiana Power & Light Co		New Orleans Public Service Inc				Bangor Hydro-Electric Co	
Name of Plant	Waterford		Market Street [1]		Michoud		Graham Station	
Region and Power Supply Area Location of Plant	V-25 Taft LA		V-25 New Orleans LA		V-25 New Orleans LA		I-01 Veazie ME	
General Operating Characteristics								
Installed Generating Capacity (MW)	891.0		96.3		959.3		57.5	
Generation (million kWh)	1,899.5		-		2,917.3		39.6	
Plant Factor Based on Nameplate Rating (percent)	24		-		35		8	
Net Peak Demand on Plant - 60 Minutes (MW)	827.0		NR		884.0		NR	
Net Continuous Plant Capability								
Winter Capability (MW)	822.0		109.0		918.0		58.8	
Summer Capability (MW)	822.0		103.0		918.0		57.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	2,821		239		277		10	
Structures and Improvements	11,938		5,797		14,274		3,117	
Equipment	115,370		9,462		82,407		6,038	
Total	130,129		15,497		96,958		9,165	
Cost per kW of Installed Capacity (dollars)	146		161		101		159	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	96	0.05	0	0.00	565	0.19	177	4.48
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	617	.32	12	.00	496	.17	281	7.09
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	604	.32	21	.00	655	.22	60	1.52
Miscellaneous Steam Power Expenses	1,368	.72	24	.00	1,039	.36	165	4.18
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	182	.10	0	.00	312	.11	50	1.25
Maintenance of Structures	179	.09	36	.00	226	.08	24	.62
Maintenance of Boiler Plant	1,751	.92	25	.00	2,290	.79	95	2.41
Maintenance of Electric Plant	1,049	.55	6	.00	1,143	.39	60	1.52
Maintenance of Miscellaneous Steam Plant	113	.06	0	.00	421	.14	0	.00
Total, Exclusive of Fuel	5,959	3.13	124	.00	7,147	2.45	912	23.07
Fuel	35,419	18.65	0	.00	55,641	19.07	1,588	40.14
Total Production Expenses	41,379	21.78	125	.00	62,788	21.52	2,501	63.21
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	17.8	18.67	0	0	.2	19.51	88.0	18.70
Btu per Gallon; Cents per Million Btu	151,008	294	0	0	152,300	305	150,664	295
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	18.67	0	0	0	19.51	0	NR
Gas Burned (MMcf); Cost per Mcf (dollars)	20,664.6	1.61	0	0	31,516.3	1.69	0	0
Btu per Cubic Foot; Cents per Million Btu	1,030	156	0	0	1,036	163	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	11,207		-		11,190		14,391	
Plant Hours Connected to Load	8,542		-		8,760		NR	
Total Number of Units (Exclusive of Auxiliary Units)	2		3		3		3	
Condensing Water Supply	Mississippi Rv		Mississippi Rv		Michoud Canal		Penobscot River	
Average Number of Employees	82		NR		95		23	
Type of Plant Construction	Full-Outdoor		Conventional		Full-Outdoor		Conventional	
Initial Year of Plant Operation	1975		1905		1957		1954	

[1] Units 1 and 2 placed in long term storage on December 31, 1984.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	**Central Maine Power Co**		**Baltimore Gas & Electric Co**				**Potomac Electric Power Co**	
Name of Plant	Walter F Wymen		Brandon Shores		Herbert A Wagner		Chalk Point	
Region and Power Supply Area	I-01		I-06		I-05		I-06	
Location of Plant	Cousins Isl. ME		Nr. Baltimore MD		Baltimore MD		Chalk Point MD	
	General Operating Characteristics							
Installed Generating Capacity (MW)	846.0		685.1		1,042.6		2,048.0	
Generation (million kWh)	2,544.9		3,644.8		2,189.7		5,065.5	
Plant Factor Based on Nameplate Rating (percent)	34		61		24		28	
Net Peak Demand on Plant - 60 Minutes (MW)	860.0		676.0		972.0		1,919.0	
Net Continuous Plant Capability								
Winter Capability (MW)	842.1		670.0		994.0		1,908.0	
Summer Capability (MW)	837.4		640.0		955.0		1,905.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	187		1,713		505		582	
Structures and Improvements	34,095		100,354		39,204		68,107	
Equipment	179,691		460,702		175,507		603,164	
Total	213,974		562,770		215,216		671,853	
Cost per kW of Installed Capacity (dollars)	253		821		206		328	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	532	0.21	554	0.15	309	0.14	1,309	0.26
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	1,435	.56	1,364	.37	1,569	.72	2,922	.58
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	736	.29	1,266	.35	1,536	.70	1,927	.38
Miscellaneous Steam Power Expenses	2,422	.95	1,247	.34	1,316	.60	2,406	.47
Rents	17	.01	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	650	.26	707	.19	821	.37	3,743	.74
Maintenance of Structures	418	.16	576	.16	541	.25	1,168	.23
Maintenance of Boiler Plant	3,783	1.49	2,202	.60	6,111	2.79	7,612	1.50
Maintenance of Electric Plant	2,832	1.11	793	.22	2,302	1.05	3,684	.73
Maintenance of Miscellaneous Steam Plant	347	.14	207	.06	335	.15	971	.19
Total, Exclusive of Fuel	13,172	5.18	8,916	2.44	14,840	6.77	25,762	5.08
Fuel	77,167	30.32	65,068	17.85	52,143	23.81	111,151	21.94
Total Production Expenses	90,342	35.50	73,983	20.30	66,984	30.59	136,913	27.03
	Fuel Used							
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	1,462.1	43.87	556.5	44.81	1,474.8	42.91
Btu per Pound; Cents per Million Btu	0	0	12,537	175	12,942	173	12,516	171
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	41.34	0	41.57	0	40.74
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	4,221.4	18.20	41.7	22.27	1,172.5	18.54	1,595.8	17.99
Btu per Gallon; Cents per Million Btu	149,978	288	138,935	382	149,663	295	147,080	291
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	18.31	0	22.40	0	18.90	0	19.04
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	1,996.3	2.75	6,834.0	2.80
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	1,042	264	1,043	267
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
	Plant Characteristics							
Average Btu per kWh Net Generation	10,449		10,125		10,890		10,641	
Plant Hours Connected to Load	5,923		7,607		7,554		8,624	
Total Number of Units (Exclusive of Auxiliary Units)	4		1		4		4	
Condensing Water Supply	Atlantic Ocean		Patapsco River		Patapsco River		Patuxent River	
Average Number of Employees	124		124		161		310	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1957		1984		1956		1964	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Potomac Electric Power Co				Boston Edison Co			
Name of Plant	Dickerson		Morgantown		Mystic		New Boston	
Region and Power Supply Area Location of Plant	I-06 Dickerson MD		I-06 Morgantown MD		I-02 Everett MA		I-02 South Boston MA	
General Operating Characteristics								
Installed Generating Capacity (MW)	586.0		1,252.0		1,065.8		717.7	
Generation (million kWh)	3,569.8		6,703.2		4,658.5		4,159.9	
Plant Factor Based on Nameplate Rating (percent)	69		61		49		66	
Net Peak Demand on Plant - 60 Minutes (MW)	556.0		1,186.0		1,021.0		749.0	
Net Continuous Plant Capability								
Winter Capability (MW)	543.0		0		1,021.0		760.0	
Summer Capability (MW)	543.0		0		1,017.2		755.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	579		520		7,097		0	
Structures and Improvements	26,773		29,637		60,968		16,984	
Equipment	176,122		246,925		303,714		132,482	
Total	203,474		277,061		371,779		149,466	
Cost per kW of Installed Capacity (dollars)	346		221		342		208	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1,053	0.30	1,062	0.16	1,571	0.34	1,337	0.32
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	2,812	.79	1,863	.28	4,875	1.05	3,095	.74
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	643	.18	837	.12	2,012	.43	787	.19
Miscellaneous Steam Power Expenses	1,825	.51	2,399	.36	1,877	.40	1,645	.40
Rents	0	.00	0	.00	7	.00	183	.04
Maintenance Expenses								
Maintenance Supervision and Engineering	2,433	.68	3,094	.46	3,176	.68	2,403	.58
Maintenance of Structures	562	.16	1,111	.17	1,085	.23	816	.20
Maintenance of Boiler Plant	5,106	1.43	10,020	1.49	10,702	2.30	7,182	1.73
Maintenance of Electric Plant	1,389	.39	3,186	.48	2,519	.54	3,201	.77
Maintenance of Miscellaneous Steam Plant	698	.20	998	.15	1,326	.28	795	.19
Total, Exclusive of Fuel	16,522	4.64	24,570	3.67	29,150	6.25	21,444	5.16
Fuel	50,583	14.17	106,617	15.91	127,909	27.46	108,830	26.16
Total Production Expenses	67,106	18.80	131,189	19.57	157,058	33.71	130,276	31.32
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	1,344.8	37.23	2,461.5	42.08	0	0	0	0
Btu per Pound; Cents per Million Btu	12,707	146	12,564	167	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	35.17	0	40.60	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	23.3	21.98	158.2	19.19	5,557.7	16.92	4,891.7	17.94
Btu per Gallon; Cents per Million Btu	138,495	378	146,292	312	149,552	269	149,620	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	22.89	0	18.79	0	18.39	0	17.93
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	14,489.2	2.34	8,556.1	2.46
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	1,029	227	1,032	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	9,612		9,372		10,694		9,512	
Plant Hours Connected to Load	8,760		8,359		8,760		8,637	
Total Number of Units (Exclusive of Auxiliary Units)	3		2		4		2	
Condensing Water Supply	Potomac River		Tide Wtr/ Potomac Rv		Boston Bay		Boston Bay	
Average Number of Employees	195		224		113		153	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1959		1970		1957		1965	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Cambridge Electric Light Co		New Bedford Gas & Edison Lgt Co		New England Power Co			
Name of Plant	Kendall Square		Cannon Street		Brayton Point		Salem Harbor	
Region and Power Supply Area	I-02		I-02		I-02		I-02	
Location of Plant	Cambridge MA		New Bedford MA		Somerset MA		Salem MA	
General Operating Characteristics								
Installed Generating Capacity (MW)	67.5		63.0		1,600.0		605.0	
Generation (million kWh)	264.8		170.7		9,147.5		4,314.5	
Plant Factor Based on Nameplate Rating (percent)	45		31		65		81	
Net Peak Demand on Plant - 60 Minutes (MW)	73.0		61.0		1,530.0		758.0	
Net Continuous Plant Capability								
Winter Capability (MW)	72.0		60.6		1,571.4		765.3	
Summer Capability (MW)	63.0		59.0		1,527.7		760.5	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	67		237		956		1,285	
Structures and Improvements	3,417		4,695		48,622		39,313	
Equipment	13,364		10,623		476,019		231,729	
Total	16,848		15,554		525,597		272,327	
Cost per kW of Installed Capacity (dollars)	250		247		328		336	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	923	3.48	1,053	6.17	834	0.09	687	0.16
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	931	3.52	519	3.04	2,584	.28	2,435	.56
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	-2,147	-8.11	-79	-.46	0	.00	0	.00
Electric Expenses	381	1.44	222	1.30	0	.00	-3	.00
Miscellaneous Steam Power Expenses	310	1.17	391	2.29	1,614	.18	2,112	.49
Rents	0	.00	1	.01	3,737	.41	2,171	.50
Maintenance Expenses					0	.00	0	.00
Maintenance Supervision and Engineering	93	.35	153	.90	678	.07	579	.13
Maintenance of Structures	146	.55	73	.42	1,325	.14	631	.15
Maintenance of Boiler Plant	499	1.88	618	3.62	15,402	1.68	12,531	2.90
Maintenance of Electric Plant	1,058	4.00	542	3.18	5,812	.64	6,556	1.52
Maintenance of Miscellaneous Steam Plant	163	.62	160	.94	352	.04	257	.06
Total, Exclusive of Fuel	2,357	8.90	3,653	21.41	32,338	3.53	27,956	6.47
Fuel	11,804	44.58	6,314	37.00	174,068	19.03	103,980	24.10
Total Production Expenses	14,161	53.48	9,967	58.41	206,408	22.56	131,935	30.56
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	2,544.4	41.35	760.4	43.34
Btu per Pound; Cents per Million Btu	0	0	0	0	13,042	199	13,014	231
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	40.74	0	42.64
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	137.3	19.14	96.6	18.01	3,324.3	16.06	3,906.7	15.93
Btu per Gallon; Cents per Million Btu	150,079	303	151,523	283	151,737	0	150,946	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	19.14	0	18.01	0	16.39	0	16.20
Gas Burned (MMcf); Cost per Mcf (dollars)	3,216.3	2.85	1,679.6	2.72	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	1,000	285	1,000	272	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	15,415		13,343		9,571		10,452	
Plant Hours Connected to Load	8,727		4,803		8,760		8,760	
Total Number of Units (Exclusive of Auxiliary Units)	3		2		4		4	
Condensing Water Supply	Charles River Basin		Acushnet River		Taunton River		Atlantic Ocean	
Average Number of Employees	61		49		304		270	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1949		1916		1963		1952	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Taunton Municipal Light Comm		Consumers Power Co					
Name of Plant	Cleary Flood [1]		B C Cobb		Dan E Karn		J C Weadock	
Region and Power Supply Area Location of Plant	I-02 Taunton River MA		II-11 Muskegon MI		II-11 Essexville MI		II-11 Essexville MI	
General Operating Characteristics								
Installed Generating Capacity (MW)	138.3		510.5		1,761.3		312.5	
Generation (million kWh)	150.6		2,196.9		3,012.0		1,961.9	
Plant Factor Based on Nameplate Rating (percent)	12		49		20		72	
Net Peak Demand on Plant - 60 Minutes (MW)	136.0		496.0		1,221.0		311.0	
Net Continuous Plant Capability								
Winter Capability (MW)	135.0		436.0		1,791.0		287.0	
Summer Capability (MW)	130.0		436.0		1,781.0		287.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	225		113		230		155	
Structures and Improvements	4,771		19,103		57,535		18,934	
Equipment	27,816		75,538		317,576		53,429	
Total	32,812		94,754		375,341		72,519	
Cost per kW of Installed Capacity (dollars)	237		186		213		232	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	466	3.10	476	0.22	1,702	0.56	879	0.44
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	631	4.19	1,119	.51	1,907	.63	952	.48
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	164	1.09	1,091	.50	1,477	.49	800	.40
Miscellaneous Steam Power Expenses	0	.00	1,674	.76	2,674	.89	1,448	.73
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	149	.99	743	.34	2,720	.90	1,417	.72
Maintenance of Structures	91	.60	766	.35	1,001	.33	635	.32
Maintenance of Boiler Plant	1,096	7.28	2,792	1.27	7,704	2.56	2,163	1.09
Maintenance of Electric Plant	724	4.81	419	.19	4,332	1.44	363	.18
Maintenance of Miscellaneous Steam Plant	61	.40	171	.08	589	.20	349	.18
Total, Exclusive of Fuel	3,382	22.46	9,251	4.22	24,108	8.00	9,004	4.54
Fuel	11,191	74.30	43,612	19.85	[2] 100,117	33.24	36,524	18.43
Total Production Expenses	14,574	96.76	52,864	24.06	124,221	41.24	45,531	22.97
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	835.5	49.80	1,023.6	50.59	714.6	50.11
Btu per Pound; Cents per Million Btu	0	0	13,220	191	13,194	194	13,557	187
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	47.18	0	50.31	0	50.17
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	267.0	17.75	9.9	23.07	463.8	16.55	3.9	22.69
Btu per Gallon; Cents per Million Btu	149,391	282	139,000	395	146,298	269	140,000	38
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	18.44	0	23.07	0	20.72	0	22.69
Gas Burned (MMcf); Cost per Mcf (dollars)	2,085.1	3.09	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	1,031	300	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	25,395		10,081		9,914		9,787	
Plant Hours Connected to Load	4,979		8,540		8,265		8,692	
Total Number of Units (Exclusive of Auxiliary Units)	1		5		4		2	
Condensing Water Supply	Taunton River		Muskegon Lake		Saginaw River		Saginaw Bay	
Average Number of Employees	100		185		287		164	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1966		1948		1959		1940	

---

[1] Combined cycle.

[2] Includes $39 million settlement with Union Carbide.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Consumers Power Co				Detroit Edison Co			
Name of Plant	J H Campbell		J R Whiting		Belle River		Monroe	
Region and Power Supply Area	II-11		II-11		II-11		II-11	
Location of Plant	West Olive MI		Erie MI		East China Township MI		Monroe MI	
	General Operating Characteristics							
Installed Generating Capacity (MW)	1,420.0		325.0		1,560.0		3,273.6	
Generation (million kWh)	8,862.1		2,241.1		8,736.3		21,480.6	
Plant Factor Based on Nameplate Rating (percent)	71		79		64		75	
Net Peak Demand on Plant - 60 Minutes (MW)	1,430.0		320.0		1,298.0		3,005.0	
Net Continuous Plant Capability								
Winter Capability (MW)	1,397.0		310.0		1,290.0		3,000.0	
Summer Capability (MW)	1,398.0		310.0		1,290.0		3,004.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	2,243		475		1,320		4,043	
Structures and Improvements	247,585		18,704		356,032		177,270	
Equipment	532,862		55,398		1,558,442		1,004,353	
Total	782,690		74,577		1,915,795		1,185,666	
Cost per kW of Installed Capacity (dollars)	551		229		1,228		362	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1,669	0.19	616	0.27	3,438	0.39	2,838	0.13
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	1,786	.20	1,130	.50	4,218	.48	5,606	.26
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	1,659	.19	806	.36	115	.01	83	.00
Miscellaneous Steam Power Expenses	3,136	.35	1,171	.52	4,488	.51	6,759	.31
Rents	0	.00	0	.00	6	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	3,209	.36	822	.37	520	.06	1,829	.09
Maintenance of Structures	1,538	.17	717	.32	1,007	.12	4,204	.20
Maintenance of Boiler Plant	9,034	1.02	2,555	1.14	12,636	1.45	28,910	1.35
Maintenance of Electric Plant	972	.11	351	.16	1,684	.19	8,591	.40
Maintenance of Miscellaneous Steam Plant	781	.09	236	.11	3,224	.37	3,680	.17
Total, Exclusive of Fuel	23,784	2.68	8,404	3.75	31,336	3.58	62,500	2.91
Fuel	147,689	16.61	39,695	17.71	[1] 115,546	13.22	356,402	16.61
Total Production Expenses	171,473	19.29	48,098	21.46	146,882	16.80	418,902	19.52
	Fuel Used							
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	3,020.2	48.06	859.1	44.95	4,783.7	29.00	7,976.3	43.69
Btu per Pound; Cents per Million Btu	13,145	183	13,176	174	9,284	156	12,825	170
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	47.47	0	46.18	0	29.05	0	42.98
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	22.3	21.56	2.2	22.91	50.9	21.28	77.9	22.29
Btu per Gallon; Cents per Million Btu	138,000	369	140,000	390	137,814	367	137,741	385
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	22.39	0	22.91	0	22.57	0	22.50
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
	Plant Characteristics							
Average Btu per kWh Net Generation	8,944		10,107		10,186		9,554	
Plant Hours Connected to Load	8,748		8,760		8,676		8,760	
Total Number of Units (Exclusive of Auxiliary Units)	3		3		1		4	
Condensing Water Supply	Lake Michigan		Lake Erie		St. Claire River		Lake Erie	
Average Number of Employees	195		180		288		649	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1962		1952		1984		1971	

[1] Excludes fuel transportation costs.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Detroit Edison Co				Lansing City of		Marquette City of	
Name of Plant	River Rouge		Trenton Channel		Ottawa Street		Shiras	
Region and Power Supply Area Location of Plant	II-11 River Rouge MI		II-11 Trenton MI		II-11 Lansing MI		II-11 Marquette MI	
General Operating Characteristics								
Installed Generating Capacity (MW)	833.2		775.5		75.0		77.4	
Generation (million kWh)	2,881.7		3,977.8		25.7		200.2	
Plant Factor Based on Nameplate Rating (percent)	35		59		4		30	
Net Peak Demand on Plant - 60 Minutes (MW)	543.0		612.0		34.9		-	
Net Continuous Plant Capability								
Winter Capability (MW)	772.0		743.0		65.5		73.0	
Summer Capability (MW)	798.0		743.0		64.5		73.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	3,239		317		600		2,000	
Structures and Improvements	17,644		19,105		3,518		8,115	
Equipment	214,307		155,786		13,205		54,653	
Total	235,190		175,208		17,331		64,768	
Cost per kW of Installed Capacity (dollars)	282		226		231		837	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1,430	0.50	1,542	0.39	300	11.67	61	0.31
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	2,884	1.00	3,179	.80	649	25.26	624	3.12
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	304	.11	579	.15	145	5.65	203	1.01
Miscellaneous Steam Power Expenses	1,809	.63	2,307	.58	101	3.91	117	.58
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	514	.18	465	.12	163	6.34	61	.31
Maintenance of Structures	1,319	.46	2,215	.56	251	9.78	30	.15
Maintenance of Boiler Plant	11,077	3.84	5,443	1.37	532	20.72	561	2.80
Maintenance of Electric Plant	1,789	.62	562	.14	121	4.71	49	.25
Maintenance of Miscellaneous Steam Plant	1,299	.45	1,787	.45	177	6.90	4	.02
Total, Exclusive of Fuel	22,435	7.79	18,079	4.56	2,439	94.94	1,710	8.55
Fuel	[1] 62,316	21.62	78,449	19.72	[2] 1,345	52.35	6,300	31.46
Total Production Expenses	84,751	29.40	96,528	24.27	3,784	147.29	8,010	40.01
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	1,120.7	52.61	1,514.0	50.60	13.0	64.11	143.6	43.72
Btu per Pound; Cents per Million Btu	12,231	215	12,917	196	13,848	232	9,491	269
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	52.06	0	51.30	0	54.45	0	41.87
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	.1	27.80	16.0	20.75	1.1	21.96	.9	23.80
Btu per Gallon; Cents per Million Btu	142,862	463	137,874	358	134,826	388	138,200	410
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	NR	0	21.72	0	21.56	0	17.64
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	9,721		9,522		14,257		13,642	
Plant Hours Connected to Load	8,362		8,760		1,691		24	
Total Number of Units (Exclusive of Auxiliary Units)	3		3		5		3	
Condensing Water Supply	Detroit River		Detroit River		Grand River		Lake Superior	
Average Number of Employees	224		327		35		46	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1956		1949		1938		1964	

[1] Excludes $750,381 worth of fuel used for steam and sold to other companies from River Rouge Power Plant.

[2] Includes $483,216 fuel costs for steam heat generation.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Upper Peninsula Generating Co		Austin City of				Minnesota Power & Light Co	
Name of Plant	Presque Isle		Austin [1]		Northeast Station		Clay Boswell	
Region and Power Supply Area Location of Plant	IV-13 Marquette MI		IV-17 Austin MN		IV-17 Austin MN		IV-16 Cohasett MN	
General Operating Characteristics								
Installed Generating Capacity (MW)	628.1		27.5		29.3		1,072.5	
Generation (million kWh)	2,774.8		NR		91.2		5,343.2	
Plant Factor Based on Nameplate Rating (percent)	50		–		36		57	
Net Peak Demand on Plant - 60 Minutes (MW)	496.5		NR		31.5		959.2	
Net Continuous Plant Capability								
Winter Capability (MW)	591.6		31.0		29.3		1,005.0	
Summer Capability (MW)	589.5		27.5		29.3		1,005.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	832		24		70		4,725	
Structures and Improvements	61,422		1,270		2,377		91,553	
Equipment	225,116		5,822		5,585		469,943	
Total	287,370		7,117		8,032		566,220	
Cost per kW of Installed Capacity (dollars)	458		259		274		528	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1,076	0.39	31	0.00	33	0.36	1,656	0.31
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	2,402	.87	0	.00	259	2.84	3,071	.57
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	962	.35	0	.00	161	1.76	1,210	.23
Miscellaneous Steam Power Expenses	1,879	.68	160	.00	173	1.89	1,869	.35
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	374	.13	14	.00	19	.21	1,039	.19
Maintenance of Structures	272	.10	39	.00	28	.31	828	.15
Maintenance of Boiler Plant	4,511	1.63	2	.00	141	1.55	5,448	1.02
Maintenance of Electric Plant	1,096	.39	3	.00	21	.23	2,054	.38
Maintenance of Miscellaneous Steam Plant	249	.09	8	.00	3	.03	587	.11
Total, Exclusive of Fuel	12,821	4.63	257	.00	838	9.18	17,762	3.31
Fuel	53,280	19.20	0	.00	2,166	23.74	83,121	15.56
Total Production Expenses	66,099	23.80	257	.00	3,003	32.91	100,884	18.88
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	1,455.9	36.62	0	0	22.0	44.22	3,[illegible]37.0	24.18
Btu per Pound; Cents per Million Btu	10,724	171	0	0	12,377	179	8,526	142
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	34.91	0	0	0	44.22	0	24.39
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	11.3	23.75	0	0	0	0	0	0
Btu per Gallon; Cents per Million Btu	135,404	418	0	0	0	0	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	24.67	0	0	0	0	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	639.1	1.78	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	997	178	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	11,276		–		12,952		10,778	
Plant Hours Connected to Load	8,760		NR		7,415		8,760	
Total Number of Units (Exclusive of Auxiliary Units)	9		4		1		4	
Condensing Water Supply	Lake Superior		Red Cedar River		Red Cedar River		Mississippi Rv	
Average Number of Employees	NR		5		21		246	
Type of Plant Construction	Conventional		Conventional		Conventional		Outdoor	
Initial Year of Plant Operation	1955		1935		1971		1958	

[1] Retired in October 1987.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	New Ulm Public City of		Northern States Power Co				Owatonna City of	
Name of Plant	New Ulm		Allen S King		Sherburne County		Owatonna [1]	
Region and Power Supply Area	IV-16		IV-16		IV-16		IV-17	
Location of Plant	New Ulm MN		Oak Park Hgts MN		Becker MN		Owatonna MN	
General Operating Characteristics								
Installed Generating Capacity (MW)	21.0		598.4		[2] 2,240.0		30.0	
Generation (million kWh)	83.3		3,410.9		9,396.8		NR	
Plant Factor Based on Nameplate Rating (percent)	45		65		48		-	
Net Peak Demand on Plant - 60 Minutes (MW)	36.8		-		NR		NR	
Net Continuous Plant Capability								
Winter Capability (MW)	21.0		581.0		2,270.0		29.0	
Summer Capability (MW)	21.0		560.0		2,141.0		29.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	76		676		5,939		301	
Structures and Improvements	1,135		18,006		225,659		958	
Equipment	5,282		90,365		1,040,044		5,594	
Total	6,493		109,047		1,271,641		6,853	
Cost per kW of Installed Capacity (dollars)	309		182		568		228	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	424	5.09	364	0.11	3,664	0.39	0	0.00
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	0	.00	1,484	.43	3,792	.40	0	.00
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	0	.00	600	.18	951	.10	0	.00
Miscellaneous Steam Power Expenses	0	.00	2,079	.61	8,403	.89	0	.00
Rents	0	.00	4	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	0	.00	565	.17	1,162	.13	0	.00
Maintenance of Structures	11	.13	258	.08	617	.07	0	.00
Maintenance of Boiler Plant	146	1.76	1,975	.58	8,201	.87	0	.00
Maintenance of Electric Plant	104	1.25	247	.07	1,969	.21	0	.00
Maintenance of Miscellaneous Steam Plant	0	.00	454	.13	1,590	.17	0	.00
Total, Exclusive of Fuel	685	8.23	8,010	2.36	30,369	3.23	0	.00
Fuel	2,035	24.43	44,146	12.94	133,313	14.18	0	.00
Total Production Expenses	2,720	32.66	52,156	15.30	163,682	16.79	0	.00
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	8.3	47.80	1,923.8	22.82	5,870.5	22.57	0	0
Btu per Pound; Cents per Million Btu	12,100	198	8,773	130	8,547	132	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	45.55	0	21.02	0	21.44	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	33.6	22.76	0	0
Btu per Gallon; Cents per Million Btu	0	0	0	0	137,168	395	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	18.19	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	890.2	1.84	14.7	2.15	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	1,000	184	999	215	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	12,016		9,950		10,313		-	
Plant Hours Connected to Load	8,760		8,042		8,364		NR	
Total Number of Units (Exclusive of Auxiliary Units)	2		1		2		2	
Condensing Water Supply	Wells		St. Croix River		Mississippi Rv		Wells	
Average Number of Employees	25		116		514		NR	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1902		1968		1976		1924	

[1] On standby.

[2] 60MW upgrade on unit 3 from last report period.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	**Rochester City of**		**Greenwood City of**		**Mississippi Power & Light Co**			
Name of Plant	Silver Lake		Henderson		Baxter Wilson		Natchez [1]	
Region and Power Supply Area	IV-16		V-25		V-25		V-25	
Location of Plant	Rochester MN		Greenwood MS		Greenville MS		Natchez MS	
	General Operating Characteristics							
Installed Generating Capacity (MW)	98.4		32.7		1,221.0		66.0	
Generation (million kWh)	361.4		35.3		735.3		-1.0	
Plant Factor Based on Nameplate Rating (percent)	42		12		7		-	
Net Peak Demand on Plant - 60 Minutes (MW)	96.0		22.7		700.0		NR	
Net Continuous Plant Capability								
Winter Capability (MW)	106.2		30.2		1,321.0		73.0	
Summer Capability (MW)	105.7		30.2		1,321.0		73.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	561		116		394		89	
Structures and Improvements	5,438		1,453		22,291		3,173	
Equipment	19,249		7,513		127,763		5,420	
Total	25,248		9,082		150,448		8,682	
Cost per kW of Installed Capacity (dollars)	257		278		123		132	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	227	0.63	47	1.32	128	0.17	2	0.00
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	570	1.58	183	5.18	551	.75	22	.00
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	217	.60	110	3.11	473	.64	24	.00
Miscellaneous Steam Power Expenses	260	.72	71	2.02	779	1.06	340	.00
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	90	.25	27	.77	211	.29	5	.00
Maintenance of Structures	97	.27	6	.16	225	.31	20	.00
Maintenance of Boiler Plant	894	2.47	285	8.08	942	1.28	77	.00
Maintenance of Electric Plant	353	.98	107	3.03	3,237	4.40	66	.00
Maintenance of Miscellaneous Steam Plant	45	.12	14	.39	397	.54	9	.00
Total, Exclusive of Fuel	2,753	7.62	850	24.06	6,943	9.44	565	.00
Fuel	[2] 9,599	26.56	1,156	32.75	21,616	29.40	0	.00
Total Production Expenses	12,352	34.17	2,005	56.80	28,560	38.84	564	.00
	Fuel Used							
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	120.4	47.31	6.7	NR	0	0	0	0
Btu per Pound; Cents per Million Btu	12,252	193	13,207	NR	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	47.26	0	NR	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	NR	NR	4.3	536.35	0	0
Btu per Gallon; Cents per Million Btu	0	0	NR	NR	137,367	930	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	NR	0	536.35	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	1,369.9	2.67	412.9	NR	8,559.0	2.25	0	0
Btu per Cubic Foot; Cents per Million Btu	996	268	1,000	NR	1,035	218	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
	Plant Characteristics							
Average Btu per kWh Net Generation	11,936		16,743		12,081		-	
Plant Hours Connected to Load	8,224		7,528		3,066		NR	
Total Number of Units (Exclusive of Auxiliary Units)	4		2		2		1	
Condensing Water Supply	Zumbro River		Wells		Mississippi Rv		Deep Wells/CT	
Average Number of Employees	52		26		77		8	
Type of Plant Construction	Conventional		Conventional		Outdoor Boiler		Outdoor Boiler	
Initial Year of Plant Operation	1949		1960		1966		1951	

---

[1] On extended reserve shutdown.

[2] Recovered $9,458,106 in fuel costs from Southern Minnesota Municipal Power Agency.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Mississippi Power & Light Co	Mississippi Power Co		Columbia City of
Name of Plant	Rex Brown	Jack Watson	Victor J Daniel Jr	Columbia [1]
Region and Power Supply Area Location of Plant	V-25 Jackson MS	III-22 Harrison County MS	III-22 Escatawpa MS	V-34 Columbia MO
General Operating Characteristics				
Installed Generating Capacity (MW)	327.5	1,174.0	1,000.0	86.0
Generation (million kWh)	802.4	4,477.7	5,100.3	89.9
Plant Factor Based on Nameplate Rating (percent)	28	44	58	12
Net Peak Demand on Plant - 60 Minutes (MW)	296.0	1,058.2	1,025.8	30.0
Net Continuous Plant Capability				
Winter Capability (MW)	343.0	1,054.5	1,023.6	86.0
Summer Capability (MW)	324.0	1,054.5	1,023.6	86.0
Historical Plant Cost (thousand dollars)				
Land and Land Rights	112	96	7,333	36
Structures and Improvements	5,547	36,842	73,715	2,759
Equipment	31,994	201,513	331,565	26,557
Total	37,653	238,450	412,614	29,353
Cost per kW of Installed Capacity (dollars)	115	203	413	341

Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	63	0.08	334	0.07	351	0.07	58	0.65
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	530	.66	1,844	.41	1,073	.21	333	3.70
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	732	.91	1,333	.30	913	.18	413	4.59
Miscellaneous Steam Power Expenses	368	.46	1,437	.32	1,538	.30	126	1.40
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	271	.34	632	.14	841	.16	45	.50
Maintenance of Structures	61	.08	1,329	.30	519	.10	10	.11
Maintenance of Boiler Plant	522	.65	9,116	2.04	2,591	.51	340	3.78
Maintenance of Electric Plant	276	.34	1,746	.39	2,041	.40	174	1.94
Maintenance of Miscellaneous Steam Plant	62	.08	754	.17	275	.05	52	.58
Total, Exclusive of Fuel	2,885	3.60	18,525	4.14	10,142	1.98	1,551	17.25
Fuel	17,959	22.38	82,543	18.43	119,574	23.44	2,358	26.22
Total Production Expenses	20,844	25.98	101,068	22.57	129,716	25.43	3,908	43.47

Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	1,802.0	42.54	2,032.2	56.10	64.8	35.69
Btu per Pound; Cents per Million Btu	0	0	12,281	173	12,873	226	12,329	148
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	NR	0	43.80	0	35.67
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	.5	20.14	0	0	16.6	20.80	0	0
Btu per Gallon; Cents per Million Btu	140,040	342	0	0	137,998	359	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	20.14	0	0	0	21.51	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	9,209.3	1.95	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	1,020	190	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0

Plant Characteristics	Rex Brown	Jack Watson	Victor J Daniel Jr	Columbia
Average Btu per kWh Net Generation	11,706	10,363	10,278	17,533
Plant Hours Connected to Load	8,760	1,917	NR	8,760
Total Number of Units (Exclusive of Auxiliary Units)	3	5	2	3
Condensing Water Supply	Pearl River Lake	Biloxi River	Cooling Lake	Wells
Average Number of Employees	55	464	304	45
Type of Plant Construction	Outdoor Boiler	Conventional	Conventional	Conventional
Initial Year of Plant Operation	1948	1957	1977	1910

[1] Includes 12.5 megawatts gas turbine capacity.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Independence City of		Kansas City Power & Light Co					
Name of Plant	Missouri City		Iatan		La Cynge		Muntrose	
Region and Power Supply Area Location of Plant	V-34 Independence MO		V-34 Weston MO		V-34 La Cynge MO		V-34 Montrose MO	
General Operating Characteristics								
Installed Generating Capacity (MW)	46.0		726.0		1,579.0		563.0	
Generation (million kWh)	53.8		3,782.4		5,775.1		1,950.4	
Plant Factor Based on Nameplate Rating (percent)	13		59		42		40	
Net Peak Demand on Plant - 60 Minutes (MW)	36.0		710.0		1,292.0		490.0	
Net Continuous Plant Capability								
Winter Capability (MW)	40.0		670.0		1,316.0		460.0	
Summer Capability (MW)	40.0		670.0		1,316.0		460.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	35		5,327		3,735		945	
Structures and Improvements	3,881		25,536		25,194		5,076	
Equipment	16,248		304,630		337,806		80,564	
Total	20,165		335,494		366,734		86,585	
Cost per kW of Installed Capacity (dollars)	438		462		232		154	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	46	0.85	584	0.15	1,093	0.19	430	0.22
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	173	3.22	936	.25	3,068	.53	1,119	.57
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	171	3.18	616	.16	936	.16	489	.25
Miscellaneous Steam Power Expenses	176	3.27	1,609	.43	2,890	.50	1,777	.91
Rents	0	.00	99	.03	8,641	1.50	49	.03
Maintenance Expenses								
Maintenance Supervision and Engineering	54	1.00	503	.13	1,060	.18	457	.23
Maintenance of Structures	0	.01	745	.20	2,752	.48	522	.27
Maintenance of Boiler Plant	273	5.08	4,471	1.18	20,980	3.63	5,403	2.77
Maintenance of Electric Plant	85	1.58	1,513	.40	2,712	.47	374	.19
Maintenance of Miscellaneous Steam Plant	133	2.48	218	.06	671	.12	221	.11
Total, Exclusive of Fuel	1,111	20.67	11,294	2.99	44,803	7.76	10,841	5.55
Fuel	1,509	28.06	31,622	8.36	82,708	14.32	29,170	14.96
Total Production Expenses	2,619	48.71	42,914	11.35	127,511	22.08	40,012	20.51
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	37.2	39.96	2,039.7	15.37	3,745.3	NR	1,090.5	26.49
Btu per Pound; Cents per Million Btu	12,115	165	8,866	865	8,803	NR	9,662	137
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	39.96	0	14.94	0	NR	0	24.21
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	.8	31.12	11.5	22.49	58.4	20.64	12.7	22.73
Btu per Gallon; Cents per Million Btu	138,589	535	138,684	386	138,221	358	138,296	391
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	31.12	0	22.47	0	NR	0	22.60
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	16,850		9,601		-		10,842	
Plant Hours Connected to Load	2,810		7,170		8,760		8,307	
Total Number of Units (Exclusive of Auxiliary Units)	-		1		2		3	
Condensing Water Supply	Missouri River		Missouri River		Lake		Artificial Lake	
Average Number of Employees	23		145		332		155	
Type of Plant Construction	Conventional		Full-Outdoor		Full-Outdoor		Full-Outdoor	
Initial Year of Plant Operation	1955		1960		1973		1958	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Missouri Public Service Co		Union Electric Co					
Name of Plant	Sibley		Labadie		Meramec		Rush Island	
Region and Power Supply Area Location of Plant	V-38 Sibley MO		IV-15 Labadie MO		IV-15 St. Louis City MO		IV-15 Jefferson County MO	
General Operating Characteristics								
Installed Generating Capacity (MW)	523.5		2,220.0		800.0		1,110.1	
Generation (million kWh)	1,535.3		12,378.2		925.2		5,523.4	
Plant Factor Based on Nameplate Rating (percent)	33		64		13		57	
Net Peak Demand on Plant - 60 Minutes (MW)	408.3		2,282.0		857.0		1,091.0	
Net Continuous Plant Capability								
Winter Capability (MW)	463.6		2,228.0		891.0		1,166.0	
Summer Capability (MW)	461.1		2,216.0		869.0		1,160.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	375		481		272		653	
Structures and Improvements	14,701		38,569		27,573		48,043	
Equipment	85,828		522,837		177,988		326,170	
Total	100,904		561,888		205,834		374,866	
Cost per kW of Installed Capacity (dollars)	193		253		257		338	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	433	0.28	981	0.08	481	0.52	656	0.12
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	701	.46	3,558	.29	1,791	1.94	1,666	.30
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	188	.12	378	.03	439	.47	296	.05
Miscellaneous Steam Power Expenses	775	.51	3,618	.29	1,992	2.15	1,354	.25
Rents	37	.02	9	.00	1	.00	4	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	370	.24	2,150	.17	1,718	1.86	1,041	.19
Maintenance of Structures	51	.03	1,549	.13	439	.47	775	.14
Maintenance of Boiler Plant	3,043	1.98	14,654	1.18	5,837	6.31	5,233	.95
Maintenance of Electric Plant	701	.46	4,334	.35	2,948	3.19	3,108	.56
Maintenance of Miscellaneous Steam Plant	490	.32	2,915	.24	1,417	1.53	1,097	.20
Total, Exclusive of Fuel	6,789	4.42	34,146	2.76	17,063	18.44	15,232	2.76
Fuel	28,119	18.31	199,001	16.08	21,235	22.95	102,320	18.52
Total Production Expenses	34,910	22.74	233,146	18.84	38,298	41.39	117,551	21.28
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	736.3	38.19	5,464.9	36.25	489.6	42.38	2,556.6	39.93
Btu per Pound; Cents per Million Btu	10,882	175	11,345	160	12,004	176	10,578	189
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	34.85	0	36.95	0	40.30	0	37.00
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	46.3	18.34	13.1	11.39	10.0	23.53
Btu per Gallon; Cents per Million Btu	0	0	137,000	320	91,740	296	137,000	413
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	22.20	0	11.18	0	23.78
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	100.3	3.39	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	1,031	328	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	10,437		10,039		12,870		9,803	
Plant Hours Connected to Load	1,034		8,759		5,590		8,759	
Total Number of Units (Exclusive of Auxiliary Units)	3		4		4		2	
Condensing Water Supply	Missouri River		Missouri River		Mississippi Rv		Mississippi Rv	
Average Number of Employees	120		483		282		254	
Type of Plant Construction	Outdoor Boiler		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1960		1970		1953		1976	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Union Electric Co		Montana Power Co		Montana-Dakota Utilities Co		Grand Island City of	
Name of Plant	Sioux		Colstrip		Lewis & Clark		C W Burdick [1]	
Region and Power Supply Area	IV-15		VII-30		VI-26		VI-26	
Location of Plant	Portage Des Sioux MO		Billings MT		Sidney MT		Grand Island NE	
General Operating Characteristics								
Installed Generating Capacity (MW)	977.5		2,272.7		44.0		92.5	
Generation (million kWh)	3,656.5		10,567.0		220.8		.4	
Plant Factor Based on Nameplate Rating (percent)	43		53		57		–	
Net Peak Demand on Plant - 60 Minutes (MW)	963.0		2,121.0		47.4		–	
Net Continuous Plant Capability								
Winter Capability (MW)	918.0		2,060.0		50.9		92.5	
Summer Capability (MW)	900.0		2,060.0		43.8		92.5	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	447		12,402		82		293	
Structures and Improvements	12,594		564,648		2,040		2,473	
Equipment	167,425		1,339,713		15,920		11,826	
Total	180,466		1,916,764		18,041		14,592	
Cost per kW of Installed Capacity (dollars)	185		843		410		158	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	575	0.16	3,095	0.29	120	0.54	25	70.56
Coolants and Water	0	.00	0	.01	0	.00	0	.00
Steam Expenses	2,268	.62	7,676	.73	284	1.29	3	7.53
Steam from Other Sources	0	.00	–4	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	4	.00	0	.00	0	.00
Electric Expenses	115	.03	5,114	.48	162	.74	195	551.06
Miscellaneous Steam Power Expenses	1,384	.38	10,727	1.02	186	.84	0	.00
Rents	21	.01	37,458	3.54	0	.00	6	16.41
Maintenance Expenses								
Maintenance Supervision and Engineering	1,052	.29	3,506	.33	74	.34	0	.00
Maintenance of Structures	826	.23	3,576	.34	39	.18	0	.52
Maintenance of Boiler Plant	6,690	1.83	15,695	1.49	289	1.31	3	8.22
Maintenance of Electric Plant	2,230	.61	8,253	.78	28	.13	19	52.37
Maintenance of Miscellaneous Steam Plant	1,215	.33	1,521	.14	84	.38	0	.00
Total, Exclusive of Fuel	16,376	4.49	96,621	9.14	1,266	5.75	251	706.67
Fuel	61,424	16.80	72,403	6.85	3,448	15.63	105	297.35
Total Production Expenses	77,802	21.28	169,024	15.96	4,715	21.37	355	.00
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	1,734.4	35.35	6,627.8	10.35	219.9	15.56	0	0
Btu per Pound; Cents per Million Btu	11,245	157	8,650	29	6,608	118	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	34.06	0	10.35	0	15.50	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	5.1	23.39	34.1	24.06	0	0	0	0
Btu per Gallon; Cents per Million Btu	137,000	412	141,000	406	0	0	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	23.37	0	24.06	0	0	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	25.1	.27	5.5	5.05	33.1	3.18
Btu per Cubic Foot; Cents per Million Btu	0	0	918	29	1,088	464	940	338
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	10,675		10,872		13,201		87,916	
Plant Hours Connected to Load	8,620		8,752		8,027		183	
Total Number of Units (Exclusive of Auxiliary Units)	2		3		1		3	
Condensing Water Supply	Mississippi Rv		Yellowstone River		Yellowstone River		Wells	
Average Number of Employees	262		644		31		9	
Type of Plant Construction	Indoor Boiler		Outdoor Boiler		Outdoor Boiler		Conventional	
Initial Year of Plant Operation	1967		1975		1958		1957	

[1] On standby.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Hastings City of		Nebraska Public Power District				Omaha Public Power District	
Name of Plant	Hastings Energy Ctr		Bluffs Plant		Gerald Gentleman		Nebraska City	
Region and Power Supply Area Location of Plant	VI-28 Hastings NE		VI-31 Scotts Bluff NE		VI-28 Sutherland NE		VI-28 Nebraska City NE	
General Operating Characteristics								
Installed Generating Capacity (MW)	76.5		42.5		1,363.0		515.9	
Generation (million kWh)	135.3		7.6		4,867.0		2,997.8	
Plant Factor Based on Nameplate Rating (percent)	20		2		41		56	
Net Peak Demand on Plant - 60 Minutes (MW)	68.0		27.0		1,232.0		587.0	
Net Continuous Plant Capability								
Winter Capability (MW)	72.0		40.0		1,278.0		585.7	
Summer Capability (MW)	72.0		39.0		1,230.0		584.9	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	767		154		2,102		2,006	
Structures and Improvements	4,275		997		107,864		83,097	
Equipment	60,477		5,565		572,746		293,957	
Total	65,519		6,716		682,713		379,061	
Cost per kW of Installed Capacity (dollars)	856		158		501		615	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	72	0.53	2	0.25	6,066	1.24	713	0.24
Coolants and Water	214	1.58	0	.00	0	.00	0	.00
Steam Expenses	0	.00	86	11.35	3,638	.74	983	.33
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	252	1.87	105	13.88	1,008	.21	413	.14
Miscellaneous Steam Power Expenses	190	1.40	26	3.45	2,248	.46	1,822	.61
Rents	0	.00	0	.00	0	.00	296	.10
Maintenance Expenses								
Maintenance Supervision and Engineering	31	.23	0	.00	612	.13	326	.11
Maintenance of Structures	26	.19	2	.23	269	.06	578	.19
Maintenance of Boiler Plant	237	1.75	18	2.33	4,624	.95	6,983	2.33
Maintenance of Electric Plant	206	1.53	8	1.10	1,293	.26	760	.25
Maintenance of Miscellaneous Steam Plant	51	.38	0	.05	890	.18	1,958	.65
Total, Exclusive of Fuel	1,279	9.46	247	32.64	20,650	4.23	14,832	4.95
Fuel	3,267	24.15	290	38.25	56,397	11.54	25,071	8.36
Total Production Expenses	4,546	33.60	538	70.90	77,047	15.77	39,903	13.31
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	117.3	27.82	0	0	2,863.0	19.33	1,911.6	12.98
Btu per Pound; Cents per Million Btu	8,080	172	0	0	8,885	108	8,201	79
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	27.67	0	0	0	NR	0	12.98
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	8.7	17.04	0	0	17.8	23.54
Btu per Gallon; Cents per Million Btu	0	0	151,900	267	0	0	135,900	412
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	NR	0	0	0	23.54
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	44.7	3.17	330.5	3.16	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	950	334	950	333	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	13,248		12,892		10,474		10,493	
Plant Hours Connected to Load	6,606		464		8,727		6,275	
Total Number of Units (Exclusive of Auxiliary Units)	1		2		2		1	
Condensing Water Supply	Wells		Deep Wells		Platte River		Missouri River	
Average Number of Employees	40		9		242		40	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1981		1940		1978		1979	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	**Nevada Power Co**				**Southern California Edison Co**		**Public Service Co of NH**	
Name of Plant	Reid Gardner		Sunrise		Mohave		Merrimack	
Region and Power Supply Area Location of Plant	VIII-48 Moapa NV		VIII-48 Las Vegas NV		VIII-48 Near Bull Head City NV		I-02 Bow NH	
	General Operating Characteristics							
Installed Generating Capacity (MW)	636.0		82.0		1,636.0		459.0	
Generation (million kWh)	3,109.8		105.8		8,759.2		2,621.1	
Plant Factor Based on Nameplate Rating (percent)	56		15		61		65	
Net Peak Demand on Plant - 60 Minutes (MW)	612.0		82.0		1,593.0		469.0	
Net Continuous Plant Capability								
Winter Capability (MW)	580.0		80.0		1,580.0		467.3	
Summer Capability (MW)	580.0		80.0		1,580.0		460.7	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	2,443		88		981		171	
Structures and Improvements	71,648		2,184		39,675		13,282	
Equipment	470,073		15,278		350,973		82,241	
Total	544,164		17,550		391,629		95,693	
Cost per kW of Installed Capacity (dollars)	856		214		239		208	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	283	0.09	199	1.88	1,919	0.22	936	0.36
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	3,534	1.14	223	2.10	5,413	.62	1,318	.50
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	2,297	.74	364	3.44	1,240	.14	17	.01
Miscellaneous Steam Power Expenses	4,563	1.47	58	.55	5,940	.68	690	.26
Rents	7	.00	0	.00	137	.02	2	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	383	.12	51	.48	6,800	.78	945	.36
Maintenance of Structures	1,422	.46	73	.69	4,281	.49	124	.05
Maintenance of Boiler Plant	11,201	3.60	468	4.42	29,117	3.32	6,695	2.55
Maintenance of Electric Plant	4,257	1.37	776	7.34	7,485	.85	582	.22
Maintenance of Miscellaneous Steam Plant	1,898	.61	202	1.90	1,577	.18	2,119	.81
Total, Exclusive of Fuel	29,845	9.60	2,414	22.80	63,909	7.30	13,428	5.12
Fuel	73,547	23.65	2,397	22.65	108,045	12.33	52,513	20.03
Total Production Expenses	103,393	33.24	4,810	45.45	171,952	19.63	65,941	25.15
	Fuel Used							
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	1,440.6	50.89	0	0	4,266.7	24.17	964.8	54.05
Btu per Pound; Cents per Million Btu	11,971	212	0	0	10,987	106	13,334	197
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	NR	0	0	0	NR	0	54.05
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	16.0	23.90	5.0	14.65	0	0	1.1	25.96
Btu per Gallon; Cents per Million Btu	136,366	417	148,224	235	0	0	133,155	464
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	NR	0	NR	0	0	0	25.96
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	1,119.0	2.08	1,923.9	2.60	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	1,042	199	1,042	257	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
	Plant Characteristics							
Average Btu per kWh Net Generation	11,120		11,313		10,935		10,098	
Plant Hours Connected to Load	8,712		2,460		8,760		8,618	
Total Number of Units (Exclusive of Auxiliary Units)	4		1		2		2	
Condensing Water Supply	Wells/River		Sewage Effluent		Colorado River		Merrimack River	
Average Number of Employees	275		34		447		130	
Type of Plant Construction	Conventional		Conventional/OD		Full-Outdoor		Outdoor Boiler	
Initial Year of Plant Operation	1965		1964		1971		1960	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Atlantic City Electric Co		Jersey Central Power & Light Co		Public Service Electric & Gas Co			
Name of Plant	B L England		Werner		Bergen		Hudson	
Region and Power Supply Area Location of Plant	I-05 Beesley's Point NJ		I-05 South Amboy NJ		I-05 Ridgefield NJ		I-05 Jersey City NJ	
General Operating Characteristics								
Installed Generating Capacity (MW)	475.6		60.0		650.4		1,114.5	
Generation (million kWh)	2,337.0		96.7		2,243.5		3,742.1	
Plant Factor Based on Nameplate Rating (percent)	56		18		39		38	
Net Peak Demand on Plant - 60 Minutes (MW)	445.0		61.0		589.0		960.0	
Net Continuous Plant Capability								
Winter Capability (MW)	449.0		60.0		600.0		1,025.0	
Summer Capability (MW)	449.0		56.0		570.0		983.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	336		29		18		2,563	
Structures and Improvements	28,928		8,955		19,095		19,603	
Equipment	140,779		11,999		133,388		299,993	
Total	170,043		20,984		152,502		322,159	
Cost per kW of Installed Capacity (dollars)	358		350		234		289	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	3,705	1.59	157	1.63	1,943	0.87	2,974	0.79
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	1,851	.79	623	6.44	1,004	.45	1,425	.38
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	648	.28	505	5.23	405	.18	650	.17
Miscellaneous Steam Power Expenses	1,697	.73	697	7.21	1,901	.85	4,305	1.15
Rents	0	.00	0	.00	0	.00	6	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	1,210	.52	379	3.92	3,525	1.57	5,361	1.43
Maintenance of Structures	1,244	.53	586	6.06	763	.34	2,778	.74
Maintenance of Boiler Plant	6,187	2.65	840	8.69	5,793	2.58	10,661	2.85
Maintenance of Electric Plant	1,970	.84	166	1.72	1,590	.71	3,910	1.04
Maintenance of Miscellaneous Steam Plant	581	.25	292	3.02	379	.17	1,165	.31
Total, Exclusive of Fuel	19,093	8.18	4,245	43.92	17,303	7.72	33,235	8.88
Fuel	51,892	22.20	3,532	36.54	62,304	27.77	78,339	20.93
Total Production Expenses	70,987	30.40	7,777	80.00	79,607	35.50	111,574	29.80
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	633.5	44.87	0	0	0	0	1,092.2	47.62
Btu per Pound; Cents per Million Btu	12,926	174	0	0	0	0	13,157	181
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	43.84	0	0	0	0	0	45.46
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	1,224.5	19.05	163.6	19.24	116.2	15.82	168.3	14.82
Btu per Gallon; Cents per Million Btu	150,534	301	147,543	311	147,788	260	146,860	240
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	19.80	0	21.65	0	22.62	0	29.40
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	22,498.0	2.69	9,260.6	2.45
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	1,030	260	1,049	198
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	10,336		11,765		10,686		10,563	
Plant Hours Connected to Load	8,759		2,319		6,820		7,552	
Total Number of Units (Exclusive of Auxiliary Units)	3		1		2		2	
Condensing Water Supply	Great Egg Harbor Bay		Raritan River		Passaic River		Hackensack River	
Average Number of Employees	174		80		179		261	
Type of Plant Construction	Conventional		Conventional		Outdoor Boiler		Outdoor Boiler	
Initial Year of Plant Operation	1962		1930		1959		1964	

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Public Service Electric & Gas Co	Vineland City of	Arizona Public Service Co	Farmington City of
Name of Plant	Mercer	Howard Down	Four Corners	Animas [1]
Region and Power Supply Area Location of Plant	I-05 Hamilton Twp NJ	I-05 Vineland NJ	VIII-48 Farmington NM	VI-32 Farmington NM
General Operating Characteristics				
Installed Generating Capacity (MW)	652.8	76.5	2,270.0	34.0
Generation (million kWh)	2,530.6	189.8	14,397.1	26.2
Plant Factor Based on Nameplate Rating (percent)	44	28	72	9
Net Peak Demand on Plant - 60 Minutes (MW)	618.0	75.0	2,091.0	NR
Net Continuous Plant Capability				
Winter Capability (MW)	620.0	65.0	2,038.0	34.2
Summer Capability (MW)	612.0	65.0	2,038.0	34.2
Historical Plant Cost (thousand dollars)				
Land and Land Rights	1,713	103	107	0
Structures and Improvements	15,150	5,153	53,271	0
Equipment	164,810	20,371	931,958	0
Total	181,673	25,627	985,336	6,278
Cost per kW of Installed Capacity (dollars)	278	335	434	0

Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	2,310	0.91	136	0.72	1.231	0.09	0	0.00
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	1,071	.42	483	2.55	17,076	1.19	145	5.53
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	377	.15	627	3.30	1,654	.11	260	9.93
Miscellaneous Steam Power Expenses	2,913	1.15	680	3.58	6,211	.43	191	7.30
Rents	0	.00	2	.01	206	.01	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	4,209	1.66	88	.46	2,184	.15	105	4.03
Maintenance of Structures	424	.17	14	.07	2,153	.15	17	.66
Maintenance of Boiler Plant	13,320	5.26	518	2.73	35,654	2.48	108	4.13
Maintenance of Electric Plant	3,097	1.22	264	1.39	4,040	.28	149	5.68
Maintenance of Miscellaneous Steam Plant	606	.24	7	.04	5,096	.35	35	1.34
Total, Exclusive of Fuel	28,327	11.18	2,819	14.85	75,505	5.24	1,010	38.60
Fuel	53,740	21.24	6,665	35.13	[2] 151,587	10.53	932	35.62
Total Production Expenses	82,068	32.40	9,484	49.96	227,093	15.77	1,941	74.22
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	862.5	56.98	74.9	51.37	7,480.5	17.94	0	0
Btu per Pound; Cents per Million Btu	13,239	212	12,471	206	8,794	102	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	53.21	0	46.38	0	17.57	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	135.4	20.80	0	0	0	0
Btu per Gallon; Cents per Million Btu	0	0	150,320	329	0	0	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	18.78	0	0	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	1,723.0	2.67	0	0	445.3	2.88	457.7	2.04
Btu per Cubic Foot; Cents per Million Btu	1,028	260	0	0	1,063	274	1,175	174
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0

Plant Characteristics	Mercer	Howard Down	Four Corners	Animas
Average Btu per kWh Net Generation	9,987	13,369	9,161	20,629
Plant Hours Connected to Load	7,716	1,052	8,760	NR
Total Number of Units (Exclusive of Auxiliary Units)	2	6	5	4
Condensing Water Supply	Delaware River	Wells/CT	Artifical Lake	Animas River
Average Number of Employees	226	58	1,112	24
Type of Plant Construction	Outdoor Boiler	Conventional	Full-Outdoor	Conventional
Initial Year of Plant Operation	1960	1900	1963	1960

[1] Includes data for 2-megawatt internal combustion plant.

[2] Includes fuel handling expenses.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Public Service Co of NM		Southwestern Public Service Co		Texas-New Mexico Power Co		Central Hudson Gas & Electric Corp	
Name of Plant	San Juan		Cunningham Station		Lordsburg [1]		Danskammer	
Region and Power Supply Area	V-39		V-38		V-39		I-04	
Location of Plant	Fruitland NM		Hobbs NM		Lordsburg NM		Newburgh NY	
General Operating Characteristics								
Installed Generating Capacity (MW)	1,779.0		265.0		[2] 51.5		537.4	
Generation (million kWh)	8,152.5		883.4		-		1,900.4	
Plant Factor Based on Nameplate Rating (percent)	52		38		-		40	
Net Peak Demand on Plant - 60 Minutes (MW)	1,779.0		253.0		NR		467.0	
Net Continuous Plant Capability								
Winter Capability (MW)	1,614.0		267.0		[2] 49.1		476.0	
Summer Capability (MW)	1,614.0		267.0		[2] 44.2		476.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	202		47		24		460	
Structures and Improvements	288,408		4,317		616		26,020	
Equipment	1,375,285		24,425		8,567		183,733	
Total	1,663,865		28,789		9,207		210,213	
Cost per kW of Installed Capacity (dollars)	935		109		179		391	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	4,912	0.60	72	0.08	41	0.00	562	0.30
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	663	.08	275	.31	69	.00	1,516	.80
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	4,173	.51	302	.34	72	.00	486	.26
Miscellaneous Steam Power Expenses	7,585	.93	220	.25	53	.00	774	.41
Rents	1	.00	3	.00	0	.00	837	.44
Maintenance Expenses								
Maintenance Supervision and Engineering	4,042	.50	162	.18	40	.00	420	.22
Maintenance of Structures	1,714	.21	90	.10	0	.00	197	.10
Maintenance of Boiler Plant	15,334	1.88	254	.29	18	.00	2,293	1.21
Maintenance of Electric Plant	2,072	.25	294	.33	18	.00	1,806	.95
Maintenance of Miscellaneous Steam Plant	3,661	.45	80	.09	0	.00	68	.04
Total, Exclusive of Fuel	44,157	5.41	1,752	1.97	311	.00	8,959	4.73
Fuel	160,772	19.72	20,282	22.96	6	.00	46,000	24.21
Total Production Expenses	204,930	25.13	22,035	24.94	318	.00	54,958	28.92
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	5,151.9	28.56	0	0	0	0	414.0	52.02
Btu per Pound; Cents per Million Btu	9,687	148	0	0	0	0	13,226	197
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	29.52	0	0	0	0	0	49.82
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	74.8	18.92	.4	15.75	NR	NR	506.2	16.36
Btu per Gallon; Cents per Million Btu	138,032	324	135,000	277	NR	NR	149,332	261
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	20.88	0	15.75	0	NR	0	19.72
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	9,176.3	2.21	1.6	2.87	6,017.4	2.69
Btu per Cubic Foot; Cents per Million Btu	0	0	1,025	215	1,035	277	1,035	260
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	12,296		10,651		-		10,713	
Plant Hours Connected to Load	8,760		8,760		NR		8,760	
Total Number of Units (Exclusive of Auxiliary Units)	4		2		2		6	
Condensing Water Supply	River/CT		Wells/CT		Wells/CT		Hudson River	
Average Number of Employees	757		37		20		126	
Type of Plant Construction	Conventional		Outdoor Boiler		Conventional		Conventional	
Initial Year of Plant Operation	1973		1957		1937		1951	

---

[1] On standby.

[2] Includes gas turbine unit.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Central Hudson Gas & Electric Corp		Consolidated Edison Co of NY				Jamestown City of	
Name of Plant	Roseton		Arthur Kill		Ravenswood		S A Carlson	
Region and Power Supply Area Location of Plant	I-04 Roseton NY		I-04 Staten Isl. NY		I-04 Long Isl. City NY		I-03 Jamestown NY	
General Operating Characteristics								
Installed Generating Capacity (MW)	1,242.7		912.0		1,826.0		57.7	
Generation (million kWh)	5,510.2		1,595.9		5,422.4		207.4	
Plant Factor Based on Nameplate Rating (percent)	51		20		34		41	
Net Peak Demand on Plant - 60 Minutes (MW)	292.0		NR		NR		60.4	
Net Continuous Plant Capability								
Winter Capability (MW)	1,200.0		851.0		1,752.0		50.0	
Summer Capability (MW)	1,200.0		826.0		1,742.0		50.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	796		988		3,273		400	
Structures and Improvements	69,902		37,491		49,401		4,222	
Equipment	250,930		145,819		305,185		22,623	
Total	321,628		184,297		357,859		27,245	
Cost per kW of Installed Capacity (dollars)	259		202		196		472	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1,180	0.21	1,845	1.16	3,190	0.59	347	1.67
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	1,456	.26	1,684	1.06	2,713	.50	522	2.52
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	590	.11	647	.41	320	.06	180	.88
Miscellaneous Steam Power Expenses	1,263	.23	3,260	2.04	4,348	.80	0	.00
Rents	0	.00	0	.00	21	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	505	.09	1,063	.66	1,995	.37	167	.80
Maintenance of Structures	185	.03	1,191	.75	2,993	.55	94	.45
Maintenance of Boiler Plant	3,252	.59	3,845	2.41	6,937	1.28	500	2.41
Maintenance of Electric Plant	775	.14	4,230	2.65	5,129	.95	350	1.69
Maintenance of Miscellaneous Steam Plant	130	.02	222	.14	285	.05	25	.12
Total, Exclusive of Fuel	9,339	1.68	17,980	11.27	27,929	5.15	2,188	10.54
Fuel	160,228	29.08	58,149	36.44	175,642	32.39	4,159	20.05
Total Production Expenses	169,567	30.77	76,128	47.70	203,572	37.54	6,346	30.60
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	117.8	33.53
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	12,783	131
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	33.47
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	8,550.8	18.74	2,842.0	20.07	3,377.7	20.71	0	0
Btu per Gallon; Cents per Million Btu	151,035	295	146,486	326	147,171	335	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	18.96	0	NR	0	NR	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	33,563.4	3.12	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	1,029	303	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	9,844		10,955		10,218		14,517	
Plant Hours Connected to Load	8,760		7,084		8,760		8,760	
Total Number of Units (Exclusive of Auxiliary Units)	2		2		3		2	
Condensing Water Supply	Hudson River		Arthur Kill		East River		Chatakoin Rv	
Average Number of Employees	NR		189		292		42	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1974		1902		1963		1890	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Long Island Lighting Co			New York State Elec & Gas Corp
Name of Plant	E F Barrett	Northport	Port Jefferson	Hickling
Region and Power Supply Area Location of Plant	I-04 Island Park NY	I-04 Northport NY	I-04 Port Jefferson NY	I-03 East Corning NY
General Operating Characteristics				
Installed Generating Capacity (MW)	375.0	1,548.4	467.0	86.5
Generation (million kWh)	2,171.0	8,033.6	2,056.9	434.7
Plant Factor Based on Nameplate Rating (percent)	66	59	50	57
Net Peak Demand on Plant - 60 Minutes (MW)	369.5	1,447.0	449.0	88.0
Net Continuous Plant Capability				
Winter Capability (MW)	388.0	1,519.0	482.0	86.0
Summer Capability (MW)	368.0	1,519.0	482.0	86.0
Historical Plant Cost (thousand dollars)				
Land and Land Rights	1,267	2,184	756	36
Structures and Improvements	14,581	49,249	23,865	5,052
Equipment	59,255	312,599	70,198	21,184
Total	75,103	364,032	94,819	26,271
Cost per kW of Installed Capacity (dollars)	200	235	203	304

Power Production Expenses	E F Barrett $1,000	E F Barrett Mills/kWh	Northport $1,000	Northport Mills/kWh	Port Jefferson $1,000	Port Jefferson Mills/kWh	Hickling $1,000	Hickling Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	721	0.33	1,714	0.21	978	0.48	499	1.15
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	1,022	.47	4,029	.50	1,563	.76	712	1.64
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (Cr)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	553	.25	1,505	.19	930	.45	520	1.20
Miscellaneous Steam Power Expenses	1,088	.50	3,302	.41	2,079	1.01	511	1.17
Rents	0	.00	0	.00	11	.01	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	973	.45	2,033	.25	1,255	.61	[illegible]	1.02
Maintenance of Structures	449	.21	869	.11	690	.34	61	.14
Maintenance of Boiler Plant	2,348	1.08	7,577	.94	2,335	1.14	646	1.49
Maintenance of Electric Plant	1,227	.57	3,391	.42	1,711	.83	142	.33
Maintenance of Miscellaneous Steam Plant	220	.10	703	.09	326	.16	148	.34
Total, Exclusive of Fuel	8,601	3.96	25,153	3.12	11,878	5.79	3,684	8.48
Fuel	63,102	29.07	233,712	29.09	62,504	30.39	9,748	22.42
Total Production Expenses	71,700	33.03	258,864	32.22	74,383	36.16	13,431	30.90

Fuel Used	E F Barrett Amount	E F Barrett Cost	Northport Amount	Northport Cost	Port Jefferson Amount	Port Jefferson Cost	Hickling Amount	Hickling Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	274.8	35.47
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	11,106	159
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	33.20
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	877.8	19.52	12,894.8	18.01	3,446.6	18.08	0	0
Btu per Gallon; Cents per Million Btu	147,950	314	149,743	286	150,033	287	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	20.00	0	18.38	0	18.52	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	17,067.0	2.69	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	1,029	261	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0

Plant Characteristics	E F Barrett	Northport	Port Jefferson	Hickling
Average Btu per kWh Net Generation	10,675	10,100	10,558	14,054
Plant Hours Connected to Load	8,714	8,760	8,760	8,741
Total Number of Units (Exclusive of Auxiliary Units)	2	4	4	2
Condensing Water Supply	Hog Island Ch	Northport Bay	Long Isl. Sound	Chemung River
Average Number of Employees	71	166	105	72
Type of Plant Construction	Semi-OD	Conventional	Conv/Semi-OD	Conventional
Initial Year of Plant Operation	1955	1967	1948	1948

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	New York State Elec & Gas Corp						Niagara Mohawk Power Corp	
Name of Plant	Jennison		Milliken		Somerset		Albany	
Region and Power Supply Area Location of Plant	I-03 Bainbridge NY		I-03 Lake Ridge NY		I-03 Niagara NY		I-03 Bethlehem NY	
General Operating Characteristics								
Installed Generating Capacity (MW)	75.0		322.5		655.1		400.0	
Generation (million kWh)	295.6		2,155.5		4,692.1		2,071.5	
Plant Factor Based on Nameplate Rating (percent)	45		76		82		59	
Net Peak Demand on Plant - 60 Minutes (MW)	76.0		339.0		725.0		392.0	
Net Continuous Plant Capability								
Winter Capability (MW)	71.0		316.0		662.0		400.0	
Summer Capability (MW)	71.0		316.0		662.0		400.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	19		435		3,671		473	
Structures and Improvements	4,165		16,565		214,985		16,171	
Equipment	17,701		56,156		773,938		86,954	
Total	21,885		73,156		992,594		103,597	
Cost per kW of Installed Capacity (dollars)	292		227		1,515		259	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	428	1.45	1,264	0.59	3,840	0.82	75	0.04
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	669	2.26	522	.24	1,017	.22	1,149	.55
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	523	1.77	585	.27	539	.11	946	.46
Miscellaneous Steam Power Expenses	581	1.97	1,226	.57	3,330	.71	1,071	.52
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	277	.94	584	.27	2,092	.45	69	.03
Maintenance of Structures	65	.22	242	.11	612	.13	199	.10
Maintenance of Boiler Plant	986	3.33	1,397	.65	5,411	1.15	2,425	1.17
Maintenance of Electric Plant	81	.27	225	.10	551	.12	1,891	.91
Maintenance of Miscellaneous Steam Plant	66	.22	102	.05	802	.17	174	.08
Total, Exclusive of Fuel	3,676	12.43	6,147	2.85	18,194	3.88	7,999	3.86
Fuel	8,409	28.45	33,485	15.53	80,765	17.21	48,832	23.57
Total Production Expenses	12,086	40.89	39,631	18.39	98,959	21.09	56,832	27.43
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	212.5	39.58	832.5	40.22	1,730.2	46.68	0	0
Btu per Pound; Cents per Million Btu	10,800	183	12,196	165	12,766	182	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	38.46	0	37.74	0	40.33	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	0	0	483.1	14.96
Btu per Gallon; Cents per Million Btu	0	0	0	0	0	0	151,626	235
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	16.09
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	18,736.2	2.22
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	1,028	216
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	15,525		9,420		9,416		10,876	
Plant Hours Connected to Load	8,760		8,756		8,113		8,760	
Total Number of Units (Exclusive of Auxiliary Units)	2		2		1		4	
Condensing Water Supply	Susquehanna River		Lake Cayuga		Lake Ontario		Hudson River	
Average Number of Employees	70		82		213		131	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1945		1955		1984		1952	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Niagara Mohawk Power Corp						Orange & Rockland Utils Inc	
Name of Plant	C R Huntley		Dunkirk		Oswego		Bowline Point	
Region and Power Supply Area Location of Plant	I-03 Tonawanda NY		I-03 Dunkirk NY		I-03 Oswego NY		I-04 Haverstraw NY	
General Operating Characteristics								
Installed Generating Capacity (MW)	828.0		628.0		2,180.0		1,242.0	
Generation (million kWh)	3,880.1		3,304.9		3,065.6		4,259.1	
Plant Factor Based on Nameplate Rating (percent)	53		60		16		39	
Net Peak Demand on Plant - 60 Minutes (MW)	740.0		582.0		1,926.0		1,171.0	
Net Continuous Plant Capability								
Winter Capability (MW)	715.0		560.0		1,842.0		1,201.8	
Summer Capability (MW)	715.0		560.0		1,836.0		1,201.8	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	2,207		517		3,470		1,135	
Structures and Improvements	55,391		27,865		141,099		46,847	
Equipment	221,074		139,327		575,534		219,222	
Total	278,672		167,709		720,103		267,204	
Cost per kW of Installed Capacity (dollars)	337		267		331		215	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	117	0.03	70	0.02	119	0.04	1,579	0.37
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	3,205	.83	1,378	.42	2,418	.79	2,102	.49
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	1,751	.45	1,155	.35	1,374	.45	905	.21
Miscellaneous Steam Power Expenses	1,694	.44	1,544	.47	2,191	.71	1,608	.38
Rents	29	.01	1	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	82	.02	178	.05	343	.11	667	.16
Maintenance of Structures	1,035	.27	840	.25	581	.19	243	.06
Maintenance of Boiler Plant	7,365	1.90	7,315	2.21	6,348	2.07	1,923	.45
Maintenance of Electric Plant	2,179	.56	1,125	.34	2,077	.68	2,320	.54
Maintenance of Miscellaneous Steam Plant	1,203	.31	-22	-.01	498	.16	1,144	.27
Total, Exclusive of Fuel	18,660	4.82	13,584	4.10	15,949	5.20	12,491	2.93
Fuel	64,621	16.65	49,275	14.91	116,339	37.95	[1] 124,703	29.28
Total Production Expenses	83,282	21.46	62,858	19.02	132,290	43.15	137,193	32.21
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	1,527.0	42.32	1,278.2	38.55	0	0	0	0
Btu per Pound; Cents per Million Btu	12,964	163	12,659	150	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	40.01	0	35.93	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	5,378.9	21.56	4,011.6	19.15
Btu per Gallon; Cents per Million Btu	0	0	0	0	149,953	342	147,239	310
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	22.04	0	NR
Gas Burned (MMcf), Cost per Mcf (dollars)	0	0	0	0	26.9	3.05	[2] 18,596.7	2.57
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	1,026	297	1,032	249
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	10,204		9,947		11,023		10,331	
Plant Hours Connected to Load	8,760		8,760		6,760		8,662	
Total Number of Units (Exclusive of Auxiliary Units)	6		4		4		2	
Condensing Water Supply	Niagara River		Lake Erie		Lake Ontario		Hudson River	
Average Number of Employees	303		210		276		106	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1942		1950		1940		1972	

[1] Includes deferred fuel costs of $1,049,274.

[2] Excludes propane.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Power Authority of State of NY		Carolina Power & Light Co					
Name of Plant	Charles Poletti		Asheville		L V Sutton		Lee	
Region and Power Supply Area	I-04		III-21		III-21		III-21	
Location of Plant	Astoria NY		Skyland NC		Wilmington NC		Goldsboro NC	
General Operating Characteristics								
Installed Generating Capacity (MW)	883.0		414.0		672.0		402.0	
Generation (million kWh)	2,995.1		2,246.0		1,095.0		1,103.6	
Plant Factor Based on Nameplate Rating (percent)	39		62		19		31	
Net Peak Demand on Plant - 60 Minutes (MW)	830.0		407.0		686.0		421.0	
Net Continuous Plant Capability								
Winter Capability (MW)	825.0		394.0		629.0		421.0	
Summer Capability (MW)	825.0		392.0		613.0		407.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	744		2,433		1,207		347	
Structures and Improvements	58,186		7,140		21,307		13,326	
Equipment	395,368		52,978		115,202		57,033	
Total	454,298		62,551		137,716		70,706	
Cost per kW of Installed Capacity (dollars)	514		151		205		176	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	511	0.17	699	0.31	512	0.47	389	0.35
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	2,486	.83	442	.20	491	.45	603	.55
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	611	.20	128	.06	462	.42	283	.26
Miscellaneous Steam Power Expenses	5,791	1.93	1,153	.51	1,342	1.23	1,106	1.00
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	1	.00	732	.33	859	.78	668	.61
Maintenance of Structures	375	.13	118	.05	1,009	.92	296	.27
Maintenance of Boiler Plant	991	.33	3,178	1.41	3,326	3.04	2,111	1.91
Maintenance of Electric Plant	340	.11	726	.32	960	.88	1,735	1.57
Maintenance of Miscellaneous Steam Plant	514	.17	164	.07	157	.14	287	.26
Total, Exclusive of Fuel	11,620	3.87	7,340	3.26	9,118	8.33	7,478	6.78
Fuel	89,469	29.87	31,582	14.06	21,994	20.08	21,997	19.93
Total Production Expenses	101,088	33.75	38,921	17.32	31,112	28.41	29,475	26.71
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	856.0	36.64	480.7	43.87	446.4	46.09
Btu per Pound; Cents per Million Btu	0	0	13,166	139	12,660	173	12,749	189
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	35.37	0	41.89	0	44.03
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	1,932.6	19.98	9.8	22.37	42.6	21.15	21.4	24.70
Btu per Gallon; Cents per Million Btu	147,752	322	139,119	383	138,123	365	138,849	424
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	20.03	0	22.86	0	22.54	0	23.62
Gas Burned (MMcf); Cost per Mcf (dollars)	19,581.1	2.65	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	1,030	258	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	10,738		10,062		11,342		10,427	
Plant Hours Connected to Load	8,291		8,550		4,298		5,915	
Total Number of Units (Exclusive of Auxiliary Units)	1		2		3		3	
Condensing Water Supply	East River		Artificial Lake		Cape Fear River		Neuse Rv/Lake	
Average Number of Employees	142		101		129		98	
Type of Plant Construction	Conventional		Full-Outdoor		Full-Outdoor		Outdoor Boiler	
Initial Year of Plant Operation	1977		1964		1954		1951	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Carolina Power & Light Co				Duke Power Co			
Name of Plant	Mayo		Roxboro		Belews Creek		Cliffside [1]	
Region and Power Supply Area Location of Plant	III-21 Roxboro NC		III-21 Roxboro NC		III-21 Walnut Grove NC		III-21 Cliffside NC	
General Operating Characteristics								
Installed Generating Capacity (MW)	736.0		2,558.0		2,160.1		570.9	
Generation (million kWh)	3,881.4		12,542.1		9,464.8		2,447.1	
Plant Factor Based on Nameplate Rating (percent)	60		56		50		49	
Net Peak Demand on Plant - 60 Minutes (MW)	765.0		2,531.0		2,280.0		620.0	
Net Continuous Plant Capability								
Winter Capability (MW)	720.0		2,490.0		2,240.0		562.0	
Summer Capability (MW)	705.0		2,462.0		2,240.0		562.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	15,950		8,102		14,281		270	
Structures and Improvements	92,744		47,507		62,588		20,228	
Equipment	398,773		427,837		299,799		87,685	
Total	507,467		483,446		376,667		108,182	
Cost per kW of Installed Capacity (dollars)	689		189		174		190	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	418	0.11	1,328	0.11	1,004	0.11	340	0.14
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	690	.18	1,401	.11	3,387	.36	1,780	.73
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	214	.06	435	.03	875	.09	1,321	.54
Miscellaneous Steam Power Expenses	1,670	.43	4,210	.34	1,922	.20	955	.39
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	819	.21	2,538	.20	1,221	.13	519	.21
Maintenance of Structures	119	.03	902	.07	1,112	.12	505	.21
Maintenance of Boiler Plant	2,013	.52	12,376	.99	12,660	1.33	3,566	1.46
Maintenance of Electric Plant	529	.14	4,495	.36	6,562	.69	755	.31
Maintenance of Miscellaneous Steam Plant	132	.03	801	.06	685	.07	392	.16
Total, Exclusive of Fuel	6,604	1.71	28,486	2.27	29,428	3.10	10,133	4.15
Fuel	74,886	19.39	227,182	18.11	161,353	17.01	46,423	18.97
Total Production Expenses	81,491	21.10	255,668	20.40	190,782	20.11	56,556	23.11
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	1,629.9	45.52	4,830.1	46.70	3,438.1	46.20	956.4	47.38
Btu per Pound; Cents per Million Btu	12,145	187	12,672	184	12,516	184	12,646	187
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	45.97	0	47.15	0	45.52	0	46.72
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	31.4	22.16	72.6	22.37	47.3	22.18	7.9	21.60
Btu per Gallon; Cents per Million Btu	139,721	377	136,991	383	137,703	383	136,380	372
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	22.79	0	22.81	0	22.63	0	22.29
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	10,301		9,794		[2] 9,103		[2] 9,904	
Plant Hours Connected to Load	7,352		8,661		7,552		7,414	
Total Number of Units (Exclusive of Auxiliary Units)	1		4		2		5	
Condensing Water Supply	Mayo Creek		Hyco Rv/Art Lke		Belews Creek		Broad River	
Average Number of Employees	95		267		182		142	
Type of Plant Construction	Full-Outdoor		Full-Outdoor		Conventional		Conventional	
Initial Year of Plant Operation	1983		1966		1974		1940	

---

[1] Excludes certain coal fired units which were removed from system capability and placed into a plant modernization program.

[2] Includes Btu's of both generation and light-off fuels.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	**Duke Power Co**						**Montana-Dakota Utilities Co**	
Name of Plant	G G Allen [1]		Marshall		Riverbend		Coyote	
Region and Power Supply Area	III-21		III-21		III-21		VI-27	
Location of Plant	Belmont NC		Terrell NC		Mt. Holley NC		Bismarck ND	
	General Operating Characteristics							
Installed Generating Capacity (MW)	825.0		1,996.0		100.0		450.0	
Generation (million kWh)	1,795.1		8,666.7		222.0		2,170.3	
Plant Factor Based on Nameplate Rating (percent)	25		50		25		55	
Net Peak Demand on Plant - 60 Minutes (MW)	805.0		2,154.0		99.0		415.6	
Net Continuous Plant Capability								
Winter Capability (MW)	810.0		2,090.0		94.0		427.0	
Summer Capability (MW)	810.0		2,090.0		94.0		421.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	668		776		93		3,320	
Structures and Improvements	23,581		35,194		10,789		106,469	
Equipment	88,810		199,024		19,993		370,229	
Total	113,059		234,994		30,875		480,018	
Cost per kW of Installed Capacity (dollars)	137		118		309		1,067	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	492	0.27	540	0.06	325	1.46	272	0.13
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	1,849	1.03	2,999	.35	1,316	5.93	5,369	2.47
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	1,070	.60	1,372	.16	758	3.42	803	.37
Miscellaneous Steam Power Expenses	1,000	.56	1,879	.22	943	4.25	908	.42
Rents	0	.00	0	.00	0	.00	1	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	787	.44	1,231	.14	508	2.29	177	.08
Maintenance of Structures	775	.43	825	.10	532	2.40	249	.11
Maintenance of Boiler Plant	4,941	2.75	7,913	.91	1,681	7.57	3,851	1.77
Maintenance of Electric Plant	2,812	1.57	3,256	.38	890	4.01	1,635	.75
Maintenance of Miscellaneous Steam Plant	811	.45	711	.08	160	.72	319	.15
Total, Exclusive of Fuel	14,537	8.10	20,732	2.40	7,113	32.05	13,584	6.25
Fuel	34,759	19.36	142,220	16.41	4,551	20.50	21,367	9.85
Total Production Expenses	49,295	27.46	162,952	18.80	11,664	52.54	34,950	16.10
	Fuel Used							
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	704.2	47.33	3,157.4	44.17	98.3	43.70	1,781.1	11.44
Btu per Pound; Cents per Million Btu	12,569	188	12,535	176	12,500	173	6,898	829
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	46.65	0	44.27	0	46.22	0	NR
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	28.9	22.20	41.4	22.79	4.8	24.25	16.2	22.25
Btu per Gallon; Cents per Million Btu	138,964	380	138,533	392	138,440	417	136,552	386
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	22.32	0	22.67	0	22.60	0	NR
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
	Plant Characteristics							
Average Btu per kWh Net Generation	[2] 9,955		[2] 9,161		[2] 10,980		11,364	
Plant Hours Connected to Load	5,254		8,248		3,035		6,270	
Total Number of Units (Exclusive of Auxiliary Units)	5		4		4		1	
Condensing Water Supply	Catawba River		Catawba River		Catawba River		Missouri River	
Average Number of Employees	155		200		119		90	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1957		1965		1952		1981	

[1] Excludes certain coal fired units which were removed from system capability and placed into a plant modernization program.

[2] Includes Btu's of both generation and light-off fuels.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Cincinnati Gas & Electric Co						Cleveland Electric Illum Co	
Name of Plant	East Bend		Miami Fort		Walter C Beckjord		Ashtabula	
Region and Power Supply Area Location of Plant	II-12 Cincinnati OH		II-12 Columbia Park OH		II-12 New Richmond OH		II-08 Ashtabula OH	
	General Operating Characteristics							
Installed Generating Capacity (MW)	669.3		1,378.0		1,221.3		440.0	
Generation (million kWh)	2,986.7		7,477.0		3,445.4		2,278.9	
Plant Factor Based on Nameplate Rating (percent)	51		62		32		59	
Net Peak Demand on Plant - 60 Minutes (MW)	663.0		1,255.0		1,135.0		NR	
Net Continuous Plant Capability								
Winter Capability (MW)	600.0		1,243.0		1,124.0		420.0	
Summer Capability (MW)	600.0		1,243.0		1,118.0		415.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	3,606		429		1,763		426	
Structures and Improvements	48,852		49,734		36,738		26,700	
Equipment	405,037		306,795		242,051		114,727	
Total	457,495		356,958		280,552		141,854	
Cost per kW of Installed Capacity (dollars)	684		259		230		322	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1,471	0.49	2,296	0.31	2,134	0.62	849	0.37
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	4,315	1.44	1,424	.19	1,888	.55	2,335	1.02
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	323	.11	1,070	.14	1,037	.30	566	.25
Miscellaneous Steam Power Expenses	1,565	.52	2,426	.32	1,944	.56	2,322	1.02
Rents	2	.00	279	.04	415	.12	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	867	.29	1,315	.18	1,133	.33	509	.22
Maintenance of Structures	448	.15	1,376	.18	2,469	.72	735	.32
Maintenance of Boiler Plant	7,562	2.53	12,538	1.68	16,976	4.93	4,512	1.98
Maintenance of Electric Plant	2,093	.70	4,250	.57	5,805	1.68	615	.27
Maintenance of Miscellaneous Steam Plant	718	.24	667	.09	405	.12	953	.42
Total, Exclusive of Fuel	19,364	6.47	27,641	3.70	34,206	9.93	13,398	5.87
Fuel	48,069	16.09	119,043	15.92	60,495	17.56	41,498	18.21
Total Production Expenses	67,432	22.58	146,684	19.60	94,700	27.48	54,895	24.10
	Fuel Used							
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	1,385.7	34.50	3,147.3	37.50	1,539.6	38.85	1,026.0	39.76
Btu per Pound; Cents per Million Btu	11,281	153	11,815	159	11,288	172	12,526	157
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	32.56	0	36.12	0	37.25	0	38.38
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	11.5	22.68	43.6	24.24	29.0	22.75	12.9	24.76
Btu per Gallon; Cents per Million Btu	137,165	0	137,934	418	137,694	393	138,062	427
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	24.67	0	23.80	0	23.85	0	24.02
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
	Plant Characteristics							
Average Btu per kWh Net Generation	10,490		9,980		10,479		11,447	
Plant Hours Connected to Load	7,245		8,631		7,065		8,760	
Total Number of Units (Exclusive of Auxiliary Units)	1		4		6		5	
Condensing Water Supply	Ohio River		Ohio River		Ohio River		Lake Erie	
Average Number of Employees	188		314		287		NR	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1981		1949		1952		1949	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Cleveland Electric Illum Co				Columbus&Southern Ohio Elec Co		Dayton Power & Light Co	
Name of Plant	Avon Lake		East Lake		Conesville		J M Stuart	
Region and Power Supply Area Location of Plant	II-08 Avon Lake Village OH		II-08 East Lake OH		II-09 Conesville OH		II-12 Aberdeen OH	
General Operating Characteristics								
Installed Generating Capacity (MW)	852.0		1,257.0		2,174.9		2,441.0	
Generation (million kWh)	3,784.1		5,575.7		6,736.4		14,598.8	
Plant Factor Based on Nameplate Rating (percent)	51		51		35		68	
Net Peak Demand on Plant - 60 Minutes (MW)	NR		196.0		1,962.0		2,364.0	
Net Continuous Plant Capability								
Winter Capability (MW)	826.0		1,264.0		1,885.0		2,340.0	
Summer Capability (MW)	824.0		1,271.0		1,861.0		2,340.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	2,630		803		306		1,047	
Structures and Improvements	50,232		57,703		40,871		77,107	
Equipment	305,824		360,100		530,830		469,013	
Total	358,686		418,606		572,006		547,167	
Cost per kW of Installed Capacity (dollars)	421		333		263		224	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1,576	0.42	1,744	0.31	5,597	0.83	2,139	0.15
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	3,035	.80	3,161	.57	6,753	1.00	2,925	.20
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	985	.26	1,426	.26	1,216	.18	1,044	.07
Miscellaneous Steam Power Expenses	2,602	.69	3,256	.58	2,554	.38	4,640	.32
Rents	0	.00	0	.00	539	.08	811	.06
Maintenance Expenses								
Maintenance Supervision and Engineering	950	.25	1,131	.20	3,314	.49	2,682	.18
Maintenance of Structures	1,288	.34	2,049	.37	1,273	.19	1,476	.10
Maintenance of Boiler Plant	10,887	2.88	15,460	2.77	15,890	2.36	22,573	1.55
Maintenance of Electric Plant	1,884	.50	5,710	1.02	3,249	.48	6,096	.42
Maintenance of Miscellaneous Steam Plant	2,887	.76	3,375	.61	740	.11	152	.01
Total, Exclusive of Fuel	26,094	6.90	37,312	6.69	41,125	6.10	44,538	3.06
Fuel	73,945	19.54	90,890	16.30	120,888	17.95	247,358	16.94
Total Production Expenses	100,039	26.43	128,202	22.99	162,012	24.05	291,896	19.99
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	1,649.5	43.14	2,279.4	39.57	2,953.3	40.07	6,256.6	39.46
Btu per Pound; Cents per Million Btu	12,471	173	12,280	161	12,056	166	11,392	173
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	40.74	0	36.89	0	38.44	0	38.32
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	25.3	26.63	28.6	24.65	31.0	23.25	18.1	22.93
Btu per Gallon; Cents per Million Btu	138,271	458	137,881	425	139,398	397	136,404	400
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	25.61	0	23.72	0	23.88	0	23.48
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	10,906		10,070		10,598		9,771	
Plant Hours Connected to Load	8,760		8,760		7,172		8,760	
Total Number of Units (Exclusive of Auxiliary Units)	4		5		6		4	
Condensing Water Supply	Lake Erie		Lake Erie		River/CT		Ohio River	
Average Number of Employees	NR		NR		585		555	
Type of Plant Construction	Conventional		Conventional		Full-Outdoor		Conventional	
Initial Year of Plant Operation	1949		1953		1957		1970	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Dayton Power & Light Co	Ohio Edison Co		
Name of Plant	Killen Station	Gorgs Steam	R E Burger	W H Sammis
Region and Power Supply Area Location of Plant	II-12 Wrightsville OH	II-09 Akron OH	II-09 Dilles Bottom OH	II-09 Stratton OH
General Operating Characteristics				
Installed Generating Capacity (MW)	666.0	80.0	531.0	2,455.0
Generation (million kWh)	4,574.0	199.1	2,467.9	12,784.6
Plant Factor Based on Nameplate Rating (percent)	78	28	53	59
Net Peak Demand on Plant - 60 Minutes (MW)	620.0	85.0	471.0	2,440.0
Net Continuous Plant Capability				
Winter Capability (MW)	600.0	82.0	518.0	2,220.0
Summer Capability (MW)	600.0	80.0	510.0	2,220.0
Historical Plant Cost (thousand dollars)				
Land and Land Rights	3,289	91	187	910
Structures and Improvements	116,988	6,654	20,197	93,038
Equipment	452,027	8,813	129,675	784,598
Total	572,304	15,558	150,058	878,546
Cost per kW of Installed Capacity (dollars)	859	194	283	358

Power Production Expenses	Killen Station $1,000	Killen Station Mills/kWh	Gorgs Steam $1,000	Gorgs Steam Mills/kWh	R E Burger $1,000	R E Burger Mills/kWh	W H Sammis $1,000	W H Sammis Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	876	0.19	435	2.19	814	0.33	2,793	0.22
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	702	.15	653	3.28	2,402	.97	6,520	.51
Steam from Other Sources	0	.00	244	1.23	1,721	.70	6,447	.50
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	205	.04	284	1.43	836	.34	2,332	.18
Miscellaneous Steam Power Expenses	1,505	.33	629	3.16	1,452	.59	6,419	.50
Rents	49	.01	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	586	.13	162	.81	896	.36	1,526	.12
Maintenance of Structures	367	.08	171	.86	458	.19	2,078	.16
Maintenance of Boiler Plant	2,948	.64	892	4.48	5,652	2.29	25,239	1.97
Maintenance of Electric Plant	1,255	.27	321	1.61	1,664	.67	7,526	.59
Maintenance of Miscellaneous Steam Plant	143	.03	53	.27	3,050	1.24	865	.07
Total, Exclusive of Fuel	8,636	1.87	3,844	19.32	18,945	7.68	61,745	4.82
Fuel	60,252	13.17	4,041	20.30	36,850	14.93	182,040	14.24
Total Production Expenses	68,887	15.06	7,885	39.60	55,794	22.60	243,785	19.07

Fuel Used	Killen Station Amount	Killen Station Cost	Gorgs Steam Amount	Gorgs Steam Cost	R E Burger Amount	R E Burger Cost	W H Sammis Amount	W H Sammis Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	1,736.3	34.27	109.4	33.83	1,158.4	31.47	5,291.9	33.74
Btu per Pound; Cents per Million Btu	12,605	136	12,057	140	12,033	130	12,157	138
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	33.88	0	33.74	0	30.30	0	33.37
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	31.7	26.28	2.9	24.33	4.2	25.22	33.4	23.90
Btu per Gallon; Cents per Million Btu	136,560	458	137,388	421	137,347	437	136,665	416
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	NR	0	24.53	0	25.13	0	23.44
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0

Plant Characteristics	Killen Station	Gorgs Steam	R E Burger	W H Sammis
Average Btu per kWh Net Generation	9,610	13,345	11,307	10,079
Plant Hours Connected to Load	7,887	5,338	8,760	8,760
Total Number of Units (Exclusive of Auxiliary Units)	1	2	5	7
Condensing Water Supply	Ohio River	Cuyahoga River	Ohio River	Ohio River
Average Number of Employees	142	70	279	796
Type of Plant Construction	Conventional	Conventional	Conventional	Conventional
Initial Year of Plant Operation	1982	1913	1944	1959

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Ohio Power Co				Ohio Valley Electric Corp		Orrville City of	
Name of Plant	Gen J M Gavin		Muskingum River		Kyger Creek		Vine Street	
Region and Power Supply Area Location of Plant	II-09 Canton OH		II-09 McConnelsville OH		II-09 Cheshire OH		II-09 Orrville OH	
General Operating Characteristics								
Installed Generating Capacity (MW)	2,600.0		1,530.0		1,086.3		84.5	
Generation (million kWh)	12,582.8		8,626.9		7,521.0		187.4	
Plant Factor Based on Nameplate Rating (percent)	55		64		79		25	
Net Peak Demand on Plant - 60 Minutes (MW)	2,608.0		1,436.0		1,066.0		47.0	
Net Continuous Plant Capability								
Winter Capability (MW)	2,600.0		1,425.0		1,045.5		101.6	
Summer Capability (MW)	2,600.0		1,365.0		1,022.8		101.6	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	2,840		586		403		NR	
Structures and Improvements	72,560		36,095		34,798		NR	
Equipment	567,191		276,302		176,686		NR	
Total	642,592		312,982		211,887		NR	
Cost per kW of Installed Capacity (dollars)	247		205		195		NR	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	2,321	0.18	1,910	0.22	589	0.08	91	0.48
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	1,483	.12	2,166	.25	2,275	.30	513	2.74
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	729	.06	828	.10	1,340	.18	252	1.34
Miscellaneous Steam Power Expenses	2,892	.23	2,328	.27	2,163	.29	113	.60
Rents	102	.01	6	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	1,683	.13	1,244	.14	253	.03	154	.82
Maintenance of Structures	717	.06	1,145	.13	765	.10	175	.94
Maintenance of Boiler Plant	11,643	.90	10,933	1.27	5,504	.73	799	4.26
Maintenance of Electric Plant	1,796	.14	2,065	.24	2,933	.39	835	4.46
Maintenance of Miscellaneous Steam Plant	762	.06	876	.10	383	.05	89	.47
Total, Exclusive of Fuel	24,128	1.92	23,501	2.72	16,205	2.15	3,021	16.11
Fuel	256,901	20.42	133,970	15.53	104,439	13.89	2,870	15.31
Total Production Expenses	281,029	22.33	157,471	18.25	120,643	16.04	5,891	31.43
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	5,602.7	45.73	3,578.6	37.15	[1] 3,064.5	34.08	115.8	23.15
Btu per Pound; Cents per Million Btu	11,250	203	11,510	161	11,948	142	[2] 12,794	904
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	43.45	0	37.06	0	33.12	0	23.15
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	23.3	29.76	38.8	26.12	0	0	1.2	24.73
Btu per Gallon; Cents per Million Btu	136,867	518	135,875	457	0	0	140,000	420
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	23.57	0	23.97	0	0	0	24.73
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	29.5	3.60
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	1,000	360
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	10,029		9,575		9,737		[3] 14,231	
Plant Hours Connected to Load	8,760		8,760		8,760		8,760	
Total Number of Units (Exclusive of Auxiliary Units)	2		5		5		2	
Condensing Water Supply	Ohio River		Muskingum River		Ohio River		Municipality	
Average Number of Employees	367		370		338		50	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1974		1953		1955		1916	

[1] Includes 1,175 equivalent tons of fuel oil.

[2] Dry analysis.

[3] As received coal.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Toledo Edison Co	Grand River Dam Authority	Oklahoma Gas & Electric Co	
Name of Plant	Bay Shore	GRDA	Arbuckle	Horseshoe Lake [1]
Region and Power Supply Area	II-09	V-33	V-33	V-33
Location of Plant	Oregon OH	Vinita OK	Sulphur OK	Harrah OK

General Operating Characteristics

	Bay Shore	GRDA	Arbuckle	Horseshoe Lake
Installed Generating Capacity (MW)	639.0	1,000.0	73.5	852.9
Generation (million kWh)	3,866.0	4,329.0	135.5	2,582.4
Plant Factor Based on Nameplate Rating (percent)	69	49	21	35
Net Peak Demand on Plant - 60 Minutes (MW)	620.0	1,099.0	73.0	776.0
Net Continuous Plant Capability				
Winter Capability (MW)	631.0	1,010.0	74.0	828.5
Summer Capability (MW)	621.0	1,010.0	74.0	786.0

Historical Plant Cost (thousand dollars)

	Bay Shore	GRDA	Arbuckle	Horseshoe Lake
Land and Land Rights	958	1,690	14	147
Structures and Improvements	21,751	152,728	1,736	12,543
Equipment	164,802	616,793	8,211	68,380
Total	187,510	771,211	9,961	81,070
Cost per kW of Installed Capacity (dollars)	293	771	136	95

Power Production Expenses

	Bay Shore $1,000	Bay Shore Mills/kWh	GRDA $1,000	GRDA Mills/kWh	Arbuckle $1,000	Arbuckle Mills/kWh	Horseshoe Lake $1,000	Horseshoe Lake Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1,763	0.46	77	0.02	47	0.34	395	0.15
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	1,680	.43	610	.14	176	1.30	534	.21
Steam from Other Sources	0	.00	1,395	.32	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	814	.21	807	.19	166	1.23	594	.23
Miscellaneous Steam Power Expenses	1,238	.32	717	.17	174	1.28	630	.24
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	821	.21	130	.03	66	.49	661	.26
Maintenance of Structures	451	.12	254	.06	48	.36	274	.11
Maintenance of Boiler Plant	4,038	1.04	3,046	.70	119	.88	760	.30
Maintenance of Electric Plant	1,423	.37	710	.16	132	.97	1,766	.68
Maintenance of Miscellaneous Steam Plant	329	.08	276	.06	18	.14	78	.03
Total, Exclusive of Fuel	12,557	3.24	8,022	1.85	947	6.99	5,696	2.21
Fuel	74,186	19.19	[2] 46,988	10.85	4,800	35.44	76,551	29.64
Total Production Expenses	86,743	22.43	55,010	12.71	5,747	42.00	82,249	32.00

Fuel Used

	Bay Shore Amount	Bay Shore Cost	GRDA Amount	GRDA Cost	Arbuckle Amount	Arbuckle Cost	Horseshoe Lake Amount	Horseshoe Lake Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	1,378.6	53.11	2,752.9	23.68	NR	NR	NR	NR
Btu per Pound; Cents per Million Btu	13,117	202	8,350	142	NR	NR	NR	NR
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	52.92	0	24.24	0	NR	0	NR
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	2.8	23.83	33.8	22.95	6.5	NR	1.2	0.67
Btu per Gallon; Cents per Million Btu	135,538	418	137,465	397	143,508	NR	142,043	11
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	24.57	0	22.47	0	NR	0	NR
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	22.0	7.19	1,768.0	2.71	28,013.9	2.73
Btu per Cubic Foot; Cents per Million Btu	0	0	1,020	705	1,037	261	1,037	264
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0

Plant Characteristics

	Bay Shore	GRDA	Arbuckle	Horseshoe Lake
Average Btu per kWh Net Generation	9,359	10,572	13,826	11,252
Plant Hours Connected to Load	8,760	7,381	5,766	8,760
Total Number of Units (Exclusive of Auxiliary Units)	4	1	1	3
Condensing Water Supply	Maumee Bay	Grand-Neosho River	Wells/CT	Canadian River
Average Number of Employees	229	155	31	94
Type of Plant Construction	Conventional	Conventional	Full-Outdoor	Conv/OD
Initial Year of Plant Operation	1955	1981	1953	1958

[1] Combined cycle, includes gas turbine portion.

[2] Includes credits from leased fuel usage.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Oklahoma Gas & Electric Co							
Name of Plant	Muskogee		Mustang [1]		Seminole [2]		Sooner	
Region and Power Supply Area	V-33		V-33		V-33		V-33	
Location of Plant	Muskogee	OK	Oklahoma	OK	Konawa	OK	Red Rock	OK
	General Operating Characteristics							
Installed Generating Capacity (MW)	1,890.6		613.9		1,724.6		1,137.6	
Generation (million kWh)	6,445.3		1,288.2		4,465.8		4,773.0	
Plant Factor Based on Nameplate Rating (percent)	39		24		30		48	
Net Peak Demand on Plant - 60 Minutes (MW)	1,519.0		348.0		1,650.0		994.0	
Net Continuous Plant Capability								
Winter Capability (MW)	1,699.0		561.0		1,556.0		1,000.0	
Summer Capability (MW)	1,699.0		561.0		1,556.0		1,000.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	1,977		174		1,328		6,882	
Structures and Improvements	74,150		7,243		21,545		93,354	
Equipment	551,578		61,663		141,783		353,829	
Total	627,714		69,079		164,656		454,066	
Cost per kW of Installed Capacity (dollars)	332		113		95		399	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	888	0.14	374	0.29	580	0.13	679	0.14
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	2,132	.33	427	.33	577	.13	1,344	.28
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	1,865	.29	859	.67	574	.13	1,047	.22
Miscellaneous Steam Power Expenses	2,734	.42	662	.51	937	.21	1,649	.35
Rents	0	.00	0	.00	2	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	1,272	.20	583	.45	783	.18	969	.20
Maintenance of Structures	1,073	.17	385	.30	534	.12	843	.18
Maintenance of Boiler Plant	8,448	1.31	681	.53	1,375	.31	6,344	1.33
Maintenance of Electric Plant	1,810	.28	545	.42	1,006	.23	558	.12
Maintenance of Miscellaneous Steam Plant	290	.05	142	.11	109	.02	118	.02
Total, Exclusive of Fuel	20,512	3.19	4,656	3.61	6,477	1.46	13,547	2.84
Fuel	114,001	17.69	37,869	29.40	128,454	28.76	81,865	17.15
Total Production Expenses	134,514	21.00	42,526	33.00	134,931	30.00	95,412	20.00
	Fuel Used							
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	3,584.8	26.60	NR	NR	NR	NR	2,759.7	29.64
Btu per Pound; Cents per Million Btu	9,152	145	NR	NR	NR	NR	9,178	161
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	NR	0	NR	0	NR	0	NR
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	.9	[illegible]	3.3	9.34	10.0	30.24	5.2	13.23
Btu per Gallon; Cents per Million Btu	147,011	[illegible]	129,517	172	138,095	521	138,407	228
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	NR	0	NR	0	NR	0	NR
Gas Burned (MMcf); Cost per Mcf (dollars)	6,837.6	2.72	13,876.2	2.73	47,045.2	2.73	0	NR
Btu per Cubic Foot; Cents per Million Btu	1,037	263	1,037	263	1,037	263	0	NR
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
	Plant Characteristics							
Average Btu per kWh Net Generation	11,278		11,170		10,924		10,619	
Plant Hours Connected to Load	8,760		8,760		8,760		8,760	
Total Number of Units (Exclusive of Auxiliary Units)	4		3		3		2	
Condensing Water Supply	Arkansas River		Lk Overholser /CT		Lake Konawa		Cooling Pond	
Average Number of Employees	372		91		113		280	
Type of Plant Construction	Conv/Semi-OD		Outdoor Boilers		Conventional/OD		Conventional/OD	
Initial Year of Plant Operation	1956		1950		1971		1979	

---

[1] Includes 64 megawatts of gas turbine capacity.

[2] Includes 19 megawatts of gas turbine capacity.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Public Service Co of Oklahoma				Eugene City of		Duquesne Light Co	
Name of Plant	Northeastern		Riverside		Weyco Energy Ctr [1]		Cheswick	
Region and Power Supply Area Location of Plant	V-33 Oologah OK		V-33 Jenks OK		VII-45 ne OR		II-07 Springdale PA	
General Operating Characteristics								
Installed Generating Capacity (MW)	1,587.5		946.0		51.2		565.0	
Generation (million kWh)	6,565.7		3,082.1		NR		3,429.6	
Plant Factor Based on Nameplate Rating (percent)	47		37		-		69	
Net Peak Demand on Plant - 60 Minutes (MW)	1,523.0		852.0		NR		567.0	
Net Continuous Plant Capability								
Winter Capability (MW)	1,526.0		922.0		NR		570.0	
Summer Capability (MW)	1,526.0		922.0		32.0		562.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	1,313		1,155		1		2,167	
Structures and Improvements	22,632		6,230		320		34,875	
Equipment	401,231		104,039		6,565		132,800	
Total	425,176		111,424		6,886		169,842	
Cost per kW of Installed Capacity (dollars)	268		118		135		301	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	901	0.14	261	0.08	10	0.00	312	0.09
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	1,271	.19	506	.16	0	.00	919	.27
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	1,876	.29	720	.23	0	.00	402	.12
Miscellaneous Steam Power Expenses	2,074	.32	567	.18	0	.00	1,673	.49
Rents	0	.00	0	.00	0	.00	2	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	768	.12	186	.06	0	.00	295	.09
Maintenance of Structures	685	.10	149	.05	0	.00	257	.08
Maintenance of Boiler Plant	7,912	1.21	1,199	.39	0	.00	4,679	1.36
Maintenance of Electric Plant	1,285	.20	536	.17	0	.00	1,512	.44
Maintenance of Miscellaneous Steam Plant	351	.05	94	.03	0	.00	1,646	.48
Total, Exclusive of Fuel	17,123	2.62	4,238	1.36	10	.00	11,697	3.42
Fuel	[2] 119,205	18.18	[2] 61,330	19.83	0	.00	59,847	17.45
Total Production Expenses	136,328	20.80	65,567	21.20	10	.00	71,544	20.86
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	2,838.8	26.67	0	0	0	0	1,387.7	42.54
Btu per Pound; Cents per Million Btu	8,466	167	0	0	0	0	12,246	175
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	28.67	0	0	0	0	0	40.35
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	0	0	3.6	NR
Btu per Gallon; Cents per Million Btu	0	0	0	0	0	0	138,169	NR
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	24.27
Gas Burned (MMcf); Cost per Mcf (dollars)	18,267.1	3.05	30,871.4	2.97	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	1,050	290	1,042	285	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	10,276		[2] 10,406		-		9,960	
Plant Hours Connected to Load	8,522		8,704		NR		7,682	
Total Number of Units (Exclusive of Auxiliary Units)	4		2		3		1	
Condensing Water Supply	Verdighis/Lk/ CT		Arkansas River		River		Allegheny River	
Average Number of Employees	191		47		NR		183	
Type of Plant Construction	Conventional/OD		Conventional		Semi-Outdoor		Conventional	
Initial Year of Plant Operation	1961		1974		1976		1970	

---

[1] Did not operate in 1987.

[2] For generating ratios, IGER gas costs imputed to better reflect actual operating statistics.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Duquesne Light Co		Metropolitan Edison Co		Pennsylvania Electric Co			
Name of Plant	Elrama		Portland		Conemaugh		Homer City	
Region and Power Supply Area	II-07		I-05		I-06		I-06	
Location of Plant	Elrama PA		Portland PA		New Florence PA		Homer City PA	
General Operating Characteristics								
Installed Generating Capacity (MW)	510.0		426.7		1,872.0		2,012.0	
Generation (million kWh)	1,477.7		1,746.0		10,324.7		11,842.1	
Plant Factor Based on Nameplate Rating (percent)	33		47		63		67	
Net Peak Demand on Plant - 60 Minutes (MW)	511.0		423.0		1,740.0		1,898.0	
Net Continuous Plant Capability								
Winter Capability (MW)	487.0		399.0		1,700.0		1,884.0	
Summer Capability (MW)	474.0		401.0		1,700.0		1,884.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	3,671		463		2,397		3,159	
Structures and Improvements	31,237		20,706		60,148		96,000	
Equipment	143,196		82,892		291,463		561,021	
Total	178,104		104,061		354,007		660,180	
Cost per kW of Installed Capacity (dollars)	349		244		189		328	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	430	0.29	1,038	0.59	1,502	0.15	3,325	0.28
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	3,973	2.69	1,045	.60	2,817	.27	3,983	.34
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	1,044	.71	398	.23	770	.07	1,014	.09
Miscellaneous Steam Power Expenses	1,514	1.02	3,500	2.00	9,877	.96	10,316	.87
Rents	13	.01	1	.00	256	.02	312	.03
Maintenance Expenses								
Maintenance Supervision and Engineering	244	.17	625	.36	1,739	.17	2,315	.20
Maintenance of Structures	354	.24	510	.29	2,086	.20	1,698	.14
Maintenance of Boiler Plant	2,873	1.94	6,317	3.62	22,185	2.15	25,990	2.19
Maintenance of Electric Plant	2,591	1.75	674	.39	7,679	.74	4,533	.38
Maintenance of Miscellaneous Steam Plant	457	.31	1,189	.68	765	.07	1,115	.09
Total, Exclusive of Fuel	13,486	9.13	15,298	8.76	49,674	4.80	54,611	4.61
Fuel	33,246	22.50	31,019	17.77	146,898	14.23	179,582	15.16
Total Production Expenses	46,732	31.62	46,317	26.53	196,571	19.04	234,193	19.78
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	714.4	45.80	674.1	44.34	3,836.1	36.71	4,420.2	37.10
Btu per Pound; Cents per Million Btu	11,969	193	12,857	172	12,211	142	12,814	144
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	38.59	0	40.82	0	36.29	0	32.34
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	17.8	NR	24.7	22.95	36.0	23.00	70.2	22.13
Btu per Gallon; Cents per Million Btu	137,166	NR	137,430	398	138,800	394	138,800	379
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	25.15	0	24.02	0	23.96	0	23.00
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	11,625		10,010		9,549		9,801	
Plant Hours Connected to Load	7,569		7,139		8,500		8,760	
Total Number of Units (Exclusive of Auxiliary Units)	4		2		2		3	
Condensing Water Supply	Monongahela River		Delaware River		Nat. Draft CT		Reservoir	
Average Number of Employees	230		186		NR		367	
Type of Plant Construction	Conventional		Outdoor Boiler		O.D. Boiler M.M.		Conventional	
Initial Year of Plant Operation	1952		1958		1970		1969	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Pennsylvania Electric Co							
Name of Plant	Keystone		Shawville		Warren		Williamsburg	
Region and Power Supply Area Location of Plant	I-05 Plum Creek Twp PA		I-05 Shawville PA		I-05 Warren PA		I-05 Williamsburg PA	
General Operating Characteristics								
Installed Generating Capacity (MW)	1,872.0		640.0		84.6		25.0	
Generation (million kWh)	11,851.4		3,694.7		393.9		111.6	
Plant Factor Based on Nameplate Rating (percent)	72		66		53		51	
Net Peak Demand on Plant - 60 Minutes (MW)	1,721.0		598.0		87.0		34.0	
Net Continuous Plant Capability								
Winter Capability (MW)	1,700.0		609.0		88.0		33.0	
Summer Capability (MW)	1,700.0		588.0		88.0		32.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	4,453		109		98		196	
Structures and Improvements	44,800		32,094		6,828		8,812	
Equipment	273,573		124,573		18,848		12,539	
Total	322,826		156,777		25,774		21,549	
Cost per kW of Installed Capacity (dollars)	172		245		305		862	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1,867	0.16	251	0.07	81	0.21	264	2.37
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	2,197	.19	1,772	.48	575	1.46	397	3.56
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	867	.07	544	.15	344	.87	275	2.46
Miscellaneous Steam Power Expenses	10,770	.91	1,793	.49	706	1.79	317	2.84
Rents	327	.03	52	.01	36	.09	16	.14
Maintenance Expenses								
Maintenance Supervision and Engineering	1,564	.13	312	.08	116	.30	158	1.41
Maintenance of Structures	2,966	.25	547	.15	106	.27	93	.83
Maintenance of Boiler Plant	17,835	1.50	7,703	2.08	1,030	2.61	475	4.26
Maintenance of Electric Plant	5,872	.50	3,273	.89	162	.41	290	2.60
Maintenance of Miscellaneous Steam Plant	1,007	.08	221	.06	63	.16	83	.74
Total, Exclusive of Fuel	45,287	3.83	16,468	4.46	3,223	8.17	2,368	21.21
Fuel	141,405	11.93	47,039	12.73	7,002	17.77	1,928	17.28
Total Production Expenses	186,692	15.75	63,507	17.19	10,226	25.96	4,297	38.50
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	4,522.8	30.29	1,536.8	29.83	223.2	31.27	55.7	34.45
Btu per Pound; Cents per Million Btu	12,263	118	12,254	122	12,204	128	12,549	137
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	30.38	0	29.09	0	29.75	0	27.82
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	34.0	22.86	4.6	22.47	.9	23.94	.4	23.74
Btu per Gallon; Cents per Million Btu	138,800	392	138,800	385	138,800	411	138,800	407
Cost per Barrel, as Delivered F.O.B. Plant (dollars)	0	24.11	0	23.67	0	22.54	0	26.45
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	9,740		10,287		13,843		12,545	
Plant Hours Connected to Load	8,480		8,758		8,760		4,309	
Total Number of Units (Exclusive of Auxiliary Units)	2		4		2		1	
Condensing Water Supply	Crooked Creek/CT		Susquehanna River		Allegheny River		Juniata River	
Average Number of Employees	NR		139		82		46	
Type of Plant Construction	Conv Mine Mouth		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1967		1954		1948		1914	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Pennsylvania Power Co				Pennsylvania Power & Light Co			
Name of Plant	Bruce Mansfield		New Castle		Brunner Island		Holtwood	
Region and Power Supply Area Location of Plant	II-09 Shippingport PA		II-09 West Pittsburgh PA		I-05 York Haven PA		I-05 Holtwood PA	
	General Operating Characteristics							
Installed Generating Capacity (MW)	2,741.3		425.0		1,560.0		75.0	
Generation (million kWh)	13,055.7		1,900.2		9,254.3		536.3	
Plant Factor Based on Nameplate Rating (percent)	54		51		68		82	
Net Peak Demand on Plant - 60 Minutes (MW)	1,958.0		407.0		1,444.0		72.0	
Net Continuous Plant Capability								
Winter Capability (MW)	2,360.0		410.0		1,464.0		73.0	
Summer Capability (MW)	2,327.0		402.0		1,429.0		72.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	12,594		110		1,745		160	
Structures and Improvements	145,651		13,316		34,399		10,198	
Equipment	808,690		92,105		244,368		45,161	
Total	966,935		105,531		280,512		55,518	
Cost per kW of Installed Capacity (dollars)	353		248		180		740	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	3,336	0.26	594	0.31	480	0.05	200	0.37
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	36,113	2.77	2,066	1.09	2,479	.27	968	1.81
Steam from Other Sources	4,279	.33	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	2,213	.17	831	.44	1,144	.12	380	.71
Miscellaneous Steam Power Expenses	8,891	.68	970	.51	2,790	.30	932	1.74
Rents	26,354	2.02	5	.00	6	.00	10	.02
Maintenance Expenses								
Maintenance Supervision and Engineering	3,559	.27	345	.18	431	.05	205	.38
Maintenance of Structures	3,142	.24	236	.12	1,306	.14	474	.88
Maintenance of Boiler Plant	26,802	2.05	4,428	2.33	16,945	1.83	2,174	4.05
Maintenance of Electric Plant	5,037	.39	610	.32	3,957	.43	605	1.13
Maintenance of Miscellaneous Steam Plant	2,073	.16	256	.13	1,104	.12	254	.47
Total, Exclusive of Fuel	121,799	9.34	10,341	5.43	30,642	3.31	6,202	11.56
Fuel	209,265	16.03	28,161	14.82	162,508	17.56	8,016	14.95
Total Production Expenses	331,063	25.36	38,503	20.30	193,149	20.87	14,218	26.50
	Fuel Used							
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	5,495.4	36.75	897.3	30.69	3,642.1	44.28	352.4	22.64
Btu per Pound; Cents per Million Btu	11,980	153	12,131	127	12,510	177	9,883	117
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	35.66	0	30.67	0	43.78	0	19.62
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	90.9	22.79	9.5	27.49	54.1	23.12	1.8	22.19
Btu per Gallon; Cents per Million Btu	136,539	397	136,966	478	138,522	397	138,190	382
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	23.15	0	27.66	0	23.55	0	23.45
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
	Plant Characteristics							
Average Btu per kWh Net Generation	10,125		11,486		9,881		12,744	
Plant Hours Connected to Load	8,760		8,087		8,760		8,075	
Total Number of Units (Exclusive of Auxiliary Units)	3		5		3		1	
Condensing Water Supply	Ohio River		Beaver River		Susquehanna River		Susquehanna River	
Average Number of Employees	961		168		218		132	
Type of Plant Construction	Conventional		Conventional		Semi-OD		Conventional	
Initial Year of Plant Operation	1976		1939		1961		1925	

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Pennsylvania Power & Light Co						Philadelphia Electric Co	
Name of Plant	Martin's Creek		Montour		Sunbury		Eddystone	
Region and Power Supply Area Location of Plant	I-05 Stroudsburg PA		I-05 Columbia County PA		I-05 Sunbury PA		I-05 Eddystone PA	
General Operating Characteristics								
Installed Generating Capacity (MW)	2,014.0		1,642.0		410.0		1,489.0	
Generation (million kWh)	5,823.6		9,940.7		2,366.0		3,406.4	
Plant Factor Based on Nameplate Rating (percent)	33		69		66		26	
Net Peak Demand on Plant - 60 Minutes (MW)	1,913.0		1,517.0		384.0		1,331.0	
Net Continuous Plant Capability								
Winter Capability (MW)	1,940.0		1,515.0		389.0		1,317.0	
Summer Capability (MW)	1,920.0		1,486.0		382.0		1,299.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	1,957		3,455		741		2,413	
Structures and Improvements	66,932		42,218		31,817		120,791	
Equipment	376,367		286,579		116,267		511,677	
Total	445,256		332,250		148,825		634,881	
Cost per kW of Installed Capacity (dollars)	221		202		363		426	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	915	0.16	795	0.08	382	0.16	2,764	0.81
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	3,572	.61	2,646	.27	2,388	1.01	15,237	4.47
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	1,042	.18	1,082	.11	1,101	.47	2,231	.66
Miscellaneous Steam Power Expenses	2,554	.44	2,260	.23	2,247	.95	2,792	.82
Rents	24	.00	9	.00	25	.01	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	969	.17	544	.05	316	.13	2,310	.68
Maintenance of Structures	2,267	.39	1,393	.14	1,152	.49	3,849	1.13
Maintenance of Boiler Plant	17,303	2.97	16,661	1.68	7,732	3.27	30,214	8.87
Maintenance of Electric Plant	4,440	.76	6,908	.69	2,205	.93	4,931	1.45
Maintenance of Miscellaneous Steam Plant	886	.15	1,060	.11	388	.16	1,787	.52
Total, Exclusive of Fuel	33,972	5.83	35,358	3.56	17,916	7.58	66,115	19.41
Fuel	176,265	30.27	158,861	15.98	36,990	15.63	95,184	27.94
Total Production Expenses	210,237	36.10	194,220	19.50	54,906	23.20	161,299	47.40
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	790.8	49.34	3,727.7	42.25	1,288.7	28.55	964.7	45.41
Btu per Pound; Cents per Million Btu	12,623	195	12,704	166	10,938	130	13,055	174
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	48.37	0	41.29	0	26.89	0	39.89
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	6,989.5	19.64	60.1	22.69	8.9	22.84	2,422.9	19.62
Btu per Gallon; Cents per Million Btu	148,841	314	138,719	389	138,704	382	148,586	314
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	18.57	0	23.39	0	23.20	0	19.46
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	1,391.7	2.75
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	1,029	267
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	10,931		9,563		11,938		12,254	
Plant Hours Connected to Load	8,395		8,661		8,760		8,260	
Total Number of Units (Exclusive of Auxiliary Units)	4		3		4		4	
Condensing Water Supply	Delaware River		Susquehanna River		Susquehanna River		Delaware River	
Average Number of Employees	228		194		203		375	
Type of Plant Construction	Semi-OD		Outdoor Boiler		Conventional		Conventional	
Initial Year of Plant Operation	1954		1972		1949		1960	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	UGI Corp		West Penn Power Co				South Carolina Electric & Gas Co	
Name of Plant	Hunlock		Armstrong		Hatfield's Ferry		Canadys Steam	
Region and Power Supply Area Location of Plant	I-05 Hunlock Creek PA		II-07 Reesdale PA		II-07 Masontown PA		III-21 Canadys SC	
General Operating Characteristics								
Installed Generating Capacity (MW)	50.0		326.0		1,726.2		490.0	
Generation (million kWh)	278.6		2,295.2		9,302.0		1,423.2	
Plant Factor Based on Nameplate Rating (percent)	64		80		61		33	
Net Peak Demand on Plant - 60 Minutes (MW)	46.0		356.0		1,626.0		442.0	
Net Continuous Plant Capability								
Winter Capability (MW)	47.0		352.0		1,660.0		430.0	
Summer Capability (MW)	46.0		343.0		1,500.0		430.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	19		255		303		194	
Structures and Improvements	6,180		12,532		31,299		9,299	
Equipment	14,690		63,832		316,008		76,002	
Total	20,889		76,618		347,610		85,495	
Cost per kW of Installed Capacity (dollars)	418		235		201		174	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	154	0.55	648	0.28	1,502	0.16	491	0.34
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	727	2.61	1,359	.59	1,619	.17	934	.66
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	451	1.62	217	.09	695	.07	1,479	1.04
Miscellaneous Steam Power Expenses	315	1.13	516	.22	1,313	.14	686	.48
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	147	.53	424	.18	978	.11	149	.10
Maintenance of Structures	30	.11	439	.19	825	.09	94	.07
Maintenance of Boiler Plant	572	2.05	6,118	2.67	16,417	1.76	2,397	1.68
Maintenance of Electric Plant	319	1.15	3,015	1.31	8,777	.94	2,269	1.59
Maintenance of Miscellaneous Steam Plant	62	.22	201	.09	682	.07	573	.40
Total, Exclusive of Fuel	2,777	9.97	12,937	5.62	32,808	3.51	9,074	6.36
Fuel	5,691	20.43	29,133	12.69	134,345	14.44	25,368	17.82
Total Production Expenses	8,467	30.39	42,070	18.33	167,152	17.97	34,441	24.20
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	192.4	26.77	951.0	30.63	3,586.3	37.44	573.1	43.75
Btu per Pound; Cents per Million Btu	9,864	136	12,438	123	12,869	145	12,741	172
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	26.47	0	29.55	0	36.34	0	43.39
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	2.3	23.51	0	0	0	0	.6	27.46
Btu per Gallon; Cents per Million Btu	138,800	403	0	0	0	0	138,931	NR
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	24.53	0	0	0	0	0	23.84
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	82.5	3.40
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	1,031	341
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	13,673		10,307		9,929		10,324	
Plant Hours Connected to Load	6,999		8,605		8,760		7,294	
Total Number of Units (Exclusive of Auxiliary Units)	1		2		3		3	
Condensing Water Supply	Susquehanna River		Allegheny River		Monongahela River		Edisto River	
Average Number of Employees	77		83		234		85	
Type of Plant Construction	Conventional		Semi-OD		Semi-OD		Outdoor Boiler	
Initial Year of Plant Operation	1926		1958		1969		1962	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	South Carolina Electric & Gas Co							
Name of Plant	Hagood Steam		McMeekin Steam		Urquhart Steam		Wateree Steam	
Region and Power Supply Area Location of Plant	III-21 Charleston SC		III-21 Irma SC		III-21 Beech Isl. SC		III-21 Wateree SC	
General Operating Characteristics								
Installed Generating Capacity (MW)	98.0		294.0		250.0		772.0	
Generation (million kWh)	.8		1,699.2		1,290.8		3,824.8	
Plant Factor Based on Nameplate Rating (percent)	-		66		59		57	
Net Peak Demand on Plant - 60 Minutes (MW)	40.0		259.0		254.0		700.0	
Net Continuous Plant Capability								
Winter Capability (MW)	0		254.0		254.0		720.0	
Summer Capability (MW)	0		252.0		250.0		700.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	98		13		157		523	
Structures and Improvements	2,162		5,784		9,740		14,934	
Equipment	8,289		32,782		46,447		112,356	
Total	10,547		38,580		56,343		127,814	
Cost per kW of Installed Capacity (dollars)	108		131		225		166	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	86	111.26	280	0.16	486	0.38	557	0.15
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	42	54.86	784	.46	517	.40	902	.24
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	135	175.34	536	.32	809	.63	741	.19
Miscellaneous Steam Power Expenses	41	53.72	391	.23	320	.25	348	.09
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	37	48.44	247	.15	237	.18	88	.02
Maintenance of Structures	9	11.34	70	.04	117	.09	228	.06
Maintenance of Boiler Plant	55	70.85	999	.59	1,325	1.03	3,444	.90
Maintenance of Electric Plant	265	342.76	306	.18	81	.06	1,064	.28
Maintenance of Miscellaneous Steam Plant	2	3.21	48	.03	52	.04	157	.04
Total, Exclusive of Fuel	672	871.78	3,661	2.16	3,944	3.06	7,537	1.97
Fuel	86	111.94	28,223	16.61	21,676	16.79	64,204	16.79
Total Production Expenses	759	983.72	31,886	18.80	25,621	19.80	71,741	18.80
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	632.5	44.46	511.7	41.87	1,476.8	42.84
Btu per Pound; Cents per Million Btu	0	0	12,981	172	12,893	162	12,801	169
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	42.92	0	40.76	0	41.29
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	3.7	22.44	.5	26.38	42.1	22.34
Btu per Gallon; Cents per Million Btu	0	0	137,725	387	138,455	NR	137,514	NR
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	23.45	0	23.63	0	23.18
Gas Burned (MMcf); Cost per Mcf (dollars)	14.3	5.90	6.6	3.27	69.8	3.40	0	0
Btu per Cubic Foot; Cents per Million Btu	1,023	577	1,025	379	1,023	347	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	19,035		9,680		10,280		9,949	
Plant Hours Connected to Load	42		8,760		8,505		8,561	
Total Number of Units (Exclusive of Auxiliary Units)	3		2		3		2	
Condensing Water Supply	Ashley River		Lake Murry		Savannah River		Wateree River	
Average Number of Employees	10		68		74		92	
Type of Plant Construction	Conventional		Semi-OD		Conventional		Outdoor Boiler	
Initial Year of Plant Operation	1947		1958		1953		1970	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	South Carolina Pub Serv Auth				Black Hills Power & Light Co			
Name of Plant	Cross		Winyah		Ben French		Kirk	
Region and Power Supply Area	III-21		III-21		VI-26		VI-27	
Location of Plant	Cross SC		Georgetown SC		Rapid City SD		Lead SD	
	General Operating Characteristics							
Installed Generating Capacity (MW)	556.1		1,260.0		25.0		33.8	
Generation (million kWh)	3,119.2		4,745.6		99.3		86.6	
Plant Factor Based on Nameplate Rating (percent)	64		43		45		29	
Net Peak Demand on Plant - 60 Minutes (MW)	519.0		1,065.0		23.4		NR	
Net Continuous Plant Capability								
Winter Capability (MW)	514.0		1,093.0		21.6		29.9	
Summer Capability (MW)	514.0		1,093.0		21.6		29.9	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	2		2,140		53		77	
Structures and Improvements	43,290		74,233		1,709		3,979	
Equipment	411,790		308,229		7,871		12,665	
Total	455,082		384,602		9,632		16,721	
Cost per kW of Installed Capacity (dollars)	818		305		385		495	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	523	0.17	547	0.12	46	0.46	58	0.67
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	1,826	.59	2,307	.49	259	2.61	386	4.45
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	270	.09	786	.17	189	1.91	201	2.32
Miscellaneous Steam Power Expenses	387	.12	977	.21	73	.74	79	.91
Rents	0	.00	0	.00	0	.00	136	1.57
Maintenance Expenses								
Maintenance Supervision and Engineering	457	.15	925	.19	38	.38	32	.37
Maintenance of Structures	215	.07	797	.17	16	.16	107	1.24
Maintenance of Boiler Plant	1,971	.63	4,023	.85	114	1.15	286	3.30
Maintenance of Electric Plant	605	.19	1,387	.29	160	1.62	121	1.40
Maintenance of Miscellaneous Steam Plant	439	.14	897	.19	51	.52	5	.06
Total, Exclusive of Fuel	6,693	2.15	12,646	2.66	946	9.55	1,411	16.29
Fuel	[1] 59,365	19.03	[1] 88,049	18.55	1,724	17.37	1,586	18.31
Total Production Expenses	66,058	21.18	100,695	21.22	2,670	26.89	2,998	34.61
	Fuel Used							
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	1,194.4	49.35	606.1	46.04	81.5	18.70	83.8	18.93
Btu per Pound; Cents per Million Btu	12,503	197	12,330	187	8,092	116	8,102	116
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	47.68	0	45.31	0	18.70	0	18.93
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	18.9	NR	7.3	24.41	0	0
Btu per Gallon; Cents per Million Btu	0	0	NR	NR	135,000	430	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	NR	0	24.41	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	4.3	4.76	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	923	515	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
	Plant Characteristics							
Average Btu per kWh Net Generation	[2] 9,575		[2] 9,540		13,752		15,678	
Plant Hours Connected to Load	7,367		8,760		6,304		NR	
Total Number of Units (Exclusive of Auxiliary Units)	2		4		1		4	
Condensing Water Supply	Diversion Canal		Santee River		Cooling Towers		Upper Whitewood Crk	
Average Number of Employees	133		234		26		22	
Type of Plant Construction	Conventional		Outdoor Boiler		Conventional		Conventional	
Initial Year of Plant Operation	1984		1975		1960		1935	

---

[1] Includes fuel burned for primary fuel and ignition oil, as well as fuel handling.

[2] Excludes fuel handling and #2 oil expenses.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Otter Tail Power Co		Tennessee Valley Authority					
Name of Plant	Big Stone		Allen		Bull Run		Cumberland	
Region and Power Supply Area	VI-27		III-20		III-20		III-20	
Location of Plant	Big Stone City SD		Memphis TN		Clinton TN		Cumberland TN	
General Operating Characteristics								
Installed Generating Capacity (MW)	456.0		990.0		950.0		2,600.0	
Generation (million kWh)	720.7		3,840.0		4,756.7		14,046.2	
Plant Factor Based on Nameplate Rating (percent)	18		44		57		62	
Net Peak Demand on Plant - 60 Minutes (MW)	436.0		797.0		900.0		2,534.0	
Net Continuous Plant Capability								
Winter Capability (MW)	436.0		879.0		905.0		2,536.0	
Summer Capability (MW)	436.0		873.0		900.0		2,536.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	721		142		2,221		1,830	
Structures and Improvements	36,875		37,104		30,021		93,490	
Equipment	158,205		147,245		198,981		591,533	
Total	195,802		184,491		231,224		686,852	
Cost per kW of Installed Capacity (dollars)	430		186		243		264	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	625	0.87	1,509	0.39	1,376	0.29	2,679	0.19
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	306	.42	1,359	.35	1,306	.27	2,683	.19
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	263	.37	525	.14	701	.15	820	.06
Miscellaneous Steam Power Expenses	571	.79	2,031	.53	1,988	.42	4,237	.30
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	287	.40	395	.10	565	.12	1,435	.10
Maintenance of Structures	211	.29	623	.16	458	.10	859	.06
Maintenance of Boiler Plant	1,393	1.93	7,501	1.95	6,500	1.37	10,975	.78
Maintenance of Electric Plant	753	1.04	1,795	.47	1,792	.38	4,149	.30
Maintenance of Miscellaneous Steam Plant	90	.12	661	.17	812	.17	1,554	.11
Total, Exclusive of Fuel	4,499	6.23	16,399	4.26	15,498	3.27	29,391	2.09
Fuel	10,313	14.31	50,223	13.08	85,667	18.01	194,790	13.87
Total Production Expenses	14,812	20.55	66,623	17.35	101,163	21.27	224,181	15.96
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	698.4	14.58	1,502.4	33.33	1,857.0	45.52	5,955.1	32.47
Btu per Pound; Cents per Million Btu	6,060	120	12,190	137	11,410	201	11,730	139
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	14.88	0	31.71	0	44.66	0	31.70
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	7.5	21.01	0	0	0	0	0	0
Btu per Gallon; Cents per Million Btu	139,775	357	0	0	0	0	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	25.36	0	0	0	0	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	11,806		9,550		8,970		9,970	
Plant Hours Connected to Load	2,481		8,760		8,760		8,760	
Total Number of Units (Exclusive of Auxiliary Units)	1		3		1		2	
Condensing Water Supply	Big Stone River		Mississippi Rv		S. Holston River		Cumberland River	
Average Number of Employees	75		244		280		630	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1975		1959		1967		1973	

NR -Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Tennessee Valley Authority							
Name of Plant	Gallatin		John Sevier		Johnsonville		Kingston	
Region and Power Supply Area Location of Plant	III-20 Gallatin TN		III-20 Rogersville TN		III-20 Johnsonville TN		III-20 Kingston TN	
General Operating Characteristics								
Installed Generating Capacity (MW)	1,255.2		800.0		1,485.2		1,700.0	
Generation (million kWh)	5,935.1		5,052.4		5,522.1		9,479.7	
Plant Factor Based on Nameplate Rating (percent)	54		72		42		64	
Net Peak Demand on Plant - 60 Minutes (MW)	1,065.0		766.0		1,040.0		1,528.0	
Net Continuous Plant Capability								
Winter Capability (MW)	1,098.0		812.0		1,340.0		1,595.0	
Summer Capability (MW)	1,080.0		800.0		1,294.0		1,580.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	690		1,492		108		2,331	
Structures and Improvements	31,310		23,045		42,438		40,665	
Equipment	226,169		127,538		272,532		266,922	
Total	258,169		152,074		315,079		309,917	
Cost per kW of Installed Capacity (dollars)	206		190		212		182	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1,643	0.28	1,611	0.32	1,838	0.33	1,833	0.19
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	1,913	.32	1,587	.31	3,072	.56	3,046	.32
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	908	.15	780	.15	1,414	.26	1,417	.15
Miscellaneous Steam Power Expenses	2,314	.39	1,660	.33	2,147	.39	2,465	.26
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	649	.11	1,135	.22	644	.12	698	.07
Maintenance of Structures	328	.06	717	.14	776	.14	455	.05
Maintenance of Boiler Plant	8,082	1.36	3,754	.74	6,190	1.12	7,711	.81
Maintenance of Electric Plant	3,843	.65	1,661	.33	3,331	.60	2,203	.23
Maintenance of Miscellaneous Steam Plant	809	.14	299	.06	699	.13	223	.02
Total, Exclusive of Fuel	20,489	3.46	13,204	2.60	20,111	3.65	20,051	2.10
Fuel	87,143	14.68	62,649	12.40	78,724	14.26	126,497	13.34
Total Production Expenses	107,631	18.13	75,852	15.01	98,835	17.90	146,546	15.46
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	2,270.0	38.33	1,905.0	32.83	2,625.0	29.87	3,747.1	33.63
Btu per Pound; Cents per Million Btu	12,160	158	12,670	130	11,670	128	12,360	136
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	37.27	0	31.70	0	28.05	0	31.59
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	0	0	0	0
Btu per Gallon; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	9,310		9,560		11,110		9,760	
Plant Hours Connected to Load	8,760		8,760		8,760		8,760	
Total Number of Units (Exclusive of Auxiliary Units)	4		4		10		9	
Condensing Water Supply	Cumberland River		Holston River		Tenn/Ky Rvs		Watts Bar Lake	
Average Number of Employees	341		262		403		375	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1956		1955		1951		1954	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Central Power & Light Co						El Paso Electric Co	
Name of Plant	Barney M Davis		Coleto Creek		Nueces Bay		Newman [1]	
Region and Power Supply Area Location of Plant	V-38 Corpus Christi TX		V-38 Fannin TX		V-38 Corpus Christi TX		V-39 El Paso TX	
	General Operating Characteristics							
Installed Generating Capacity (MW)	704.0		600.0		565.0		575.0	
Generation (million kWh)	3,109.3		4,224.1		2,227.4		1,549.8	
Plant Factor Based on Nameplate Rating (percent)	50		80		45		31	
Net Peak Demand on Plant - 60 Minutes (MW)	655.0		636.0		505.0		440.0	
Net Continuous Plant Capability								
Winter Capability (MW)	691.0		609.0		540.0		489.2	
Summer Capability (MW)	691.0		609.0		511.0		477.5	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	3,001		10,643		167		2	
Structures and Improvements	12,079		60,298		7,222		8,160	
Equipment	87,675		217,777		50,821		63,709	
Total	102,755		288,718		58,230		71,870	
Cost per kW of Installed Capacity (dollars)	146		481		103		125	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	82	0.03	135	0.03	76	0.03	125	0.08
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	653	.21	790	.19	516	.23	579	.37
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	448	.14	1,292	.31	504	.23	869	.56
Miscellaneous Steam Power Expenses	353	.11	611	.14	356	.16	409	.26
Rents	0	.00	0	.00	3	.00	10	.01
Maintenance Expenses								
Maintenance Supervision and Engineering	70	.02	219	.05	75	.03	200	.13
Maintenance of Structures	280	.09	468	.11	188	.08	132	.09
Maintenance of Boiler Plant	1,206	.39	2,958	.70	604	.27	483	.31
Maintenance of Electric Plant	874	.28	518	.12	885	.40	1,174	.76
Maintenance of Miscellaneous Steam Plant	115	.04	427	.10	68	.03	73	.05
Total, Exclusive of Fuel	4,081	1.31	7,418	1.75	3,256	1.46	4,054	2.62
Fuel	68,944	22.17	85,030	20.13	48,192	21.64	30,886	19.93
Total Production Expenses	73,023	23.48	92,447	21.88	51,448	23.10	34,938	22.54
	Fuel Used							
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	1,908.7	44.51	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	10,760	207	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	44.51	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	280.0	10.45	5.3	19.04	23.3	36.79	0	0
Btu per Gallon; Cents per Million Btu	153,688	1,700	154,400	297	151,581	577	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	10.45	0	19.04	0	36.79	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	30,909.3	2.24	0	0	21,531.4	2.23	16,193.5	1.91
Btu per Cubic Foot; Cents per Million Btu	1,023	219	0	0	1,037	214	1,031	185
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
	Plant Characteristics							
Average Btu per kWh Net Generation	10,167		9,720		10,019		10,770	
Plant Hours Connected to Load	8,618		7,786		8,760		8,712	
Total Number of Units (Exclusive of Auxiliary Units)	2		1		3		4	
Condensing Water Supply	Laguna Madre River		Guadalupe Rv/Lake		Ship Channel		Rio Grande/CT	
Average Number of Employees	54		120		58		76	
Type of Plant Construction	Outdoor Boiler		Outdoor		Conventional/OD		Outdoor Boiler	
Initial Year of Plant Operation	1974		1980		1949		1959	

---

[1] Combined cycle, includes gas turbine portion.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Greenville City of		Gulf States Utilities Co				Houston Lighting & Power Co	
Name of Plant	Power Lane		Lewis Creek [1]		Sabine		Cedar Bayou	
Region and Power Supply Area Location of Plant	V-37 Greenville TX		V-36 Willis TX		V-35 Bridge City TX		V-36 Near Baytown TX	
General Operating Characteristics								
Installed Generating Capacity (MW)	99.5		542.8		2,061.1		2,296.0	
Generation (million kWh)	132.9		2,057.9		8,626.7		8,975.8	
Plant Factor Based on Nameplate Rating (percent)	15		43		48		45	
Net Peak Demand on Plant - 60 Minutes (MW)	73.1		526.0		1,874.0		2,118.0	
Net Continuous Plant Capability								
Winter Capability (MW)	87.0		530.0		1,946.0		2,250.0	
Summer Capability (MW)	87.0		530.0		1,946.0		2,250.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	117		3,327		999		5,850	
Structures and Improvements	18,079		13,038		40,522		47,284	
Equipment	577		45,072		305,371		218,436	
Total	18,774		61,437		346,891		271,571	
Cost per kW of Installed Capacity (dollars)	189		113		169		118	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	931	7.00	252	0.12	561	0.07	745	0.08
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	0	.00	338	.16	1,090	.13	1,588	.17
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	61	.46	432	.21	1,050	.12	900	.10
Miscellaneous Steam Power Expenses	0	.00	500	.24	2,481	.29	795	.09
Rents	0	.00	0	.00	0	.00	14	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	183	1.38	337	.16	881	.10	1,178	.13
Maintenance of Structures	22	.16	241	.12	1,025	.12	966	.11
Maintenance of Boiler Plant	128	.96	857	.42	4,141	.48	6,274	.70
Maintenance of Electric Plant	0	.00	516	.25	3,824	.45	6,173	.69
Maintenance of Miscellaneous Steam Plant	0	.00	50	.02	395	.05	222	.02
Total, Exclusive of Fuel	1,325	9.96	3,521	1.70	15,569	1.81	18,825	2.09
Fuel	2,967	22.33	36,444	17.71	157,068	18.21	151,575	16.89
Total Production Expenses	4,292	32.30	39,967	19.42	172,637	20.01	170,399	18.98
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	173.4	24.87	82.1	32.10
Btu per Gallon; Cents per Million Btu	0	0	0	0	146,755	404	141,904	538
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	24.87	0	32.10
Gas Burned (MMcf), Cost per Mcf (dollars)	1,592.5	NR	20,716.8	1.76	83,741.8	1.82	87,843.3	1.65
Btu per Cubic Foot; Cents per Million Btu	1,078	173	1,033	170	1,036	176	1,029	160
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	11,831		10,398		10,178		10,134	
Plant Hours Connected to Load	8,597		8,757		8,760		8,759	
Total Number of Units (Exclusive of Auxiliary Units)	3		2		5		3	
Condensing Water Supply	Reservoir		Lake		Sabine Lake		Galveston Bay	
Average Number of Employees	28		45		213		910	
Type of Plant Construction	Conventional		Conventional/OD		Outdoor Boiler		Outdoor	
Initial Year of Plant Operation	1965		1970		1962		1970	

[1] Leased from Gulf States Generation and Transmission, a wholly-owned subsidiary of the company.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Houston Lighting & Power Co							
Name of Plant	Greens Bayou		Limestone		P H Robinson		Sam Bertron	
Region and Power Supply Area Location of Plant	V-38 Houston TX		V-38 Limestone TX		V-38 Bacliff TX		V-38 Houston TX	
	General Operating Characteristics							
Installed Generating Capacity (MW)	446.4		1,626.8		2,314.5		826.3	
Generation (million kWh)	1,305.6		9,837.3		7,749.5		731.1	
Plant Factor Based on Nameplate Rating (percent)	33		69		38		10	
Net Peak Demand on Plant - 60 Minutes (MW)	570.0		1,597.0		2,139.0		730.0	
Net Continuous Plant Capability								
Winter Capability (MW)	406.0		1,440.0		2,261.0		808.0	
Summer Capability (MW)	406.0		1,440.0		2,261.0		808.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	171		10,304		1,206		506	
Structures and Improvements	22,975		267,873		48,629		34,410	
Equipment	125,035		1,180,156		238,928		101,481	
Total	148,180		1,458,332		288,764		136,397	
Cost per kW of Installed Capacity (dollars)	332		896		125		165	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	640	0.49	1,050	0.11	699	0.09	406	0.55
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	1,000	.77	6,557	.67	1,204	.16	797	1.09
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	425	.33	3,563	.36	1,357	.18	960	1.31
Miscellaneous Steam Power Expenses	694	.53	2,502	.25	1,147	.15	480	.66
Rents	0	.00	3	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	497	.38	1,256	.13	1,011	.13	494	.68
Maintenance of Structures	183	.14	1,275	.13	550	.07	384	.52
Maintenance of Boiler Plant	1,524	1.17	15,405	1.57	7,132	.92	5,115	7.00
Maintenance of Electric Plant	1,181	.90	706	.07	7,309	.94	2,144	2.93
Maintenance of Miscellaneous Steam Plant	-1,036	-.79	2,126	.22	206	.03	212	.29
Total, Exclusive of Fuel	5,108	3.92	34,443	3.51	20,615	2.67	10,992	15.03
Fuel	23,118	17.71	168,820	17.16	136,396	17.60	14,407	19.71
Total Production Expenses	28,226	21.62	203,264	20.66	157,011	20.26	25,399	34.74
	Fuel Used							
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	7,534.4	20.06	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	6,429	156	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	20.06	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	25.5	17.34	20.5	20.43	2.8	19.24	5.5	32.73
Btu per Gallon; Cents per Million Btu	139,667	296	140,478	346	144,424	317	142,400	547
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	17.34	0	20.43	0	19.24	0	32.73
Gas Burned (MMcf); Cost per Mcf (dollars)	13,001.7	1.70	5,917.6	1.78	78,474.3	1.70	7,992.5	1.63
Btu per Cubic Foot; Cents per Million Btu	1,055	161	1,037	178	1,030	165	1,047	156
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
	Plant Characteristics							
Average Btu per kWh Net Generation	10,635		10,487		10,427		11,531	
Plant Hours Connected to Load	5,904		8,723		8,753		4,725	
Total Number of Units (Exclusive of Auxiliary Units)	5		2		4		4	
Condensing Water Supply	Wells/CT		Lake Limestone		Galveston Bay		Ship Channel	
Average Number of Employees	89		408		93		89	
Type of Plant Construction	Outdoor		Outdoor		Outdoor		Outdoor	
Initial Year of Plant Operation	1949		1985		1966		1956	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Houston Lighting & Power Co						Lower Colorado River Authority	
Name of Plant	T H Wharton		W A Parish		Webster		Fayette Power Proj	
Region and Power Supply Area Location of Plant	V-38 Houston TX		V-38 Richmond TX		V-38 Webster TX		V-38 LaGrange TX	
	General Operating Characteristics							
Installed Generating Capacity (MW)	247.8		3,952.8		410.0		1,160.0	
Generation (million kWh)	240.4		17,010.7		931.7		6,490.6	
Plant Factor Based on Nameplate Rating (percent)	11		49		26		64	
Net Peak Demand on Plant - 60 Minutes (MW)	244.0		3,586.0		382.0		1,228.0	
Net Continuous Plant Capability								
Winter Capability (MW)	229.0		3,517.0		374.0		1,155.0	
Summer Capability (MW)	229.0		3,517.0		374.0		1,130.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	42		4,381		600		15,844	
Structures and Improvements	23,105		188,827		11,602		70,769	
Equipment	156,090		1,096,532		39,545		365,903	
Total	179,237		1,290,740		51,747		452,517	
Cost per kW of Installed Capacity (dollars)	723		326		126		390	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	557	2.32	2,845	0.17	369	0.40	391	0.06
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	1,564	6.51	5,028	.30	533	.57	2,129	.33
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	356	1.48	5,551	.33	482	.52	1,028	.16
Miscellaneous Steam Power Expenses	477	1.98	1,778	.10	432	.46	2,247	.35
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	519	2.16	2,999	.18	252	.27	2,232	.34
Maintenance of Structures	137	.57	1,527	.09	157	.17	5,392	.83
Maintenance of Boiler Plant	1,091	4.54	25,441	1.50	145	.16	1,106	.17
Maintenance of Electric Plant	3,758	15.63	5,635	.33	876	.94	0	.00
Maintenance of Miscellaneous Steam Plant	101	.42	2,096	.12	196	.21	536	.08
Total, Exclusive of Fuel	8,560	35.61	52,900	3.12	3,429	3.68	15,081	2.32
Fuel	5,439	22.63	428,460	25.19	17,003	18.25	119,434	18.40
Total Production Expenses	13,999	58.23	481,358	28.29	20,432	21.93	134,496	20.72
	Fuel Used							
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	8,334.4	43.00	0	0	3,545.1	33.55
Btu per Pound; Cents per Million Btu	0	0	8,535	256	0	0	10,126	166
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	43.00	0	0	0	33.55
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	.3	17.82	2.9	17.51	0	0	24.7	20.46
Btu per Gallon; Cents per Million Btu	138,654	306	138,859	300	0	0	141,000	346
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	17.82	0	17.51	0	0	0	20.46
Gas Burned (MMcf); Cost per Mcf (dollars)	2,942.7	1.72	36,360.8	1.85	9,697.4	1.70	0	0
Btu per Cubic Foot; Cents per Million Btu	1,012	171	1,035	179	1,017	167	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
	Plant Characteristics							
Average Btu per kWh Net Generation	11,960		10,575		10,567		10,104	
Plant Hours Connected to Load	5,737		8,760		4,801		8,765	
Total Number of Units (Exclusive of Auxiliary Units)	2		8		3		2	
Condensing Water Supply	Deep Wells/CT		Fresh Water Lake		Clear Creek		Lake-once thru	
Average Number of Employees	148		648		62		495	
Type of Plant Construction	Outdoor		Outdoor		Outdoor		Outdoor	
Initial Year of Plant Operation	1958		1958		1954		1979	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Lubbock City of	San Antonio City of		Southwestern Electric Power Co
Name of Plant	Plant No 2	J T Deely	O W Sommers	Knox Lee
Region and Power Supply Area Location of Plant	V-38 Lubbock TX	V-38 San Antonio TX	V-38 San Antonio TX	V-33 Cherokee Lake TX
General Operating Characteristics				
Installed Generating Capacity (MW)	68.0	892.0	892.0	464.7
Generation (million kWh)	.2	4,493.1	3,036.9	418.7
Plant Factor Based on Nameplate Rating (percent)	-	57	39	10
Net Peak Demand on Plant - 60 Minutes (MW)	20.0	806.0	824.4	330.0
Net Continuous Plant Capability				
Winter Capability (MW)	67.0	810.0	850.0	501.0
Summer Capability (MW)	67.0	810.0	850.0	501.0
Historical Plant Cost (thousand dollars)				
Land and Land Rights	6	0	5,306	103
Structures and Improvements	300	29,606	25,619	8,338
Equipment	13,000	240,581	71,702	39,474
Total	[1] 13,306	270,187	102,627	47,915
Cost per kW of Installed Capacity (dollars)	196	303	115	103

Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	10	65.62	204	0.05	136	0.04	51	0.12
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	0	.00	1,277	.28	532	.18	229	.55
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	0	.00	659	.15	630	.21	243	.58
Miscellaneous Steam Power Expenses	0	.00	502	.11	412	.14	191	.46
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	0	.00	484	.11	194	.06	54	.13
Maintenance of Structures	0	.00	548	.12	140	.05	87	.21
Maintenance of Boiler Plant	0	.00	5,583	1.25	1,312	.43	343	.82
Maintenance of Electric Plant	0	.00	1,152	.26	643	.21	175	.42
Maintenance of Miscellaneous Steam Plant	0	.00	129	.03	121	.04	19	.05
Total, Exclusive of Fuel	10	65.62	10,538	2.36	4,120	1.36	1,397	3.35
Fuel	7	48.73	78,351	17.48	55,754	18.36	6,990	16.69
Total Production Expenses	17	114.45	88,889	19.83	59,873	19.71	8,388	20.00

Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	2,872.8	27.21	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	8,253	165	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	27.21	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	10.8	17.32	3.4	18.99	0	0
Btu per Gallon; Cents per Million Btu	0	0	140,015	294	140,000	323	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	17.32	0	18.99	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	3.4	2.17	0	0	30,168.3	1.86	3,975.8	1.76
Btu per Cubic Foot; Cents per Million Btu	1,067	203	0	0	1,020	182	1,065	165
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0

Plant Characteristics	Plant No 2	J T Deely	O W Sommers	Knox Lee
Average Btu per kWh Net Generation	24,000	10,591	10,141	10,116
Plant Hours Connected to Load	21	7,843	8,224	2,432
Total Number of Units (Exclusive of Auxiliary Units)	5	2	2	5
Condensing Water Supply	Municipality	Lake	Artificial Lake	Cherokee Lake
Average Number of Employees	NR	282	86	28
Type of Plant Construction	Conventional	Conventional	Outdoor Boiler	Outdoor Boiler
Initial Year of Plant Operation	1949	1977	1972	1950

---

[1] Boiler unit damaged in explosion, operating below installed capacity.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Southwestern Electric Power Co						Southwestern Public Service Co	
Name of Plant	Pirkey		Welsh		Wilkes		Harrington Station	
Region and Power Supply Area Location of Plant	V-33 Harrison TX		V-33 Carson TX		V-33 Jefferson TX		V-36 Amarillo TX	
General Operating Characteristics								
Installed Generating Capacity (MW)	660.4		1,536.9		807.4		1,080.0	
Generation (million kWh)	3,412.9		7,520.4		616.0		6,835.4	
Plant Factor Based on Nameplate Rating (percent)	59		56		0		72	
Net Peak Demand on Plant - 60 Minutes (MW)	729.6		1,549.0		786.0		1,002.0	
Net Continuous Plant Capability								
Winter Capability (MW)	650.0		1,584.0		879.0		1,066.0	
Summer Capability (MW)	650.0		1,584.0		879.0		1,066.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	5,916		1,526		172		1,105	
Structures and Improvements	116.790		61,079		6,362		23,988	
Equipment	375,424		375,210		53,207		314,136	
Total	498,131		437,815		59,742		339,230	
Cost per kW of Installed Capacity (dollars)	754		285		74		314	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	103	0.03	121	0.02	75	0.12	173	0.03
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	3,632	1.06	1,020	.14	226	.37	1,300	.19
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	783	.23	1,047	.14	239	.39	1,094	.25
Miscellaneous Steam Power Expenses	996	.29	847	.11	237	.38	60	.01
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	94	.03	277	.04	78	.13	437	.06
Maintenance of Structures	310	.09	166	.02	34	.06	345	.05
Maintenance of Boiler Plant	3,763	1.10	3,548	.47	259	.42	2,178	.32
Maintenance of Electric Plant	1,288	.38	874	.12	161	.26	1,040	.15
Maintenance of Miscellaneous Steam Plant	127	.04	110	.01	19	.03	231	.03
Total, Exclusive of Fuel	11,096	3.25	8,010	1.07	1,328	2.17	7,458	1.09
Fuel	42,791	12.54	157,227	20.91	14,374	23.33	109,925	16.08
Total Production Expenses	53,888	15.78	165,236	22.00	15.702	25.50	117,383	17.17
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	2,930.8	14.49	4,598.3	34.06	0	0	3,758.5	29.10
Btu per Pound; Cents per Million Btu	6,791	107	8,401	202	0	0	8,909	163
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	14.97	0	31.17	0	0	0	29.10
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	NR	NR	28.8	21.17	0	0	0	0
Btu per Gallon; Cents per Million Btu	NR	NR	140,000	380	0	0	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	NR	0	22.20	0	0	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	107.5	2.94	0	0	7,832.2	1.83	318.5	1.67
Btu per Cubic Foot; Cents per Million Btu	1,062	277	0	0	858	214	875	171
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	11,697		10,296		10,908		9,843	
Plant Hours Connected to Load	7,108		8,760		5,484		8,760	
Total Number of Units (Exclusive of Auxiliary Units)	1		3		3		3	
Condensing Water Supply	Pirkey Reservoir		Swauana Lake		Artificial Lake		Cooling Tower	
Average Number of Employees	134		133		32		149	
Type of Plant Construction	Outdoor		Outdoor Boiler		Outdoor Boiler		Outdoor Boiler	
Initial Year of Plant Operation	1985		1977		1984		1976	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Southwestern Public Service Co						Texas Utilities Electric Co	
Name of Plant	Jones Station		Nichols Station		Tolk Station		De Cordova	
Region and Power Supply Area Location of Plant	V-36 Lubbock TX		V-36 Amarillo TX		V-36 Amarillo TX		V-37 Grandbury TX	
General Operating Characteristics								
Installed Generating Capacity (MW)	495.0		475.0		1,136.0		799.2	
Generation (million kWh)	394.0		553.9		6,168.2		3,677.1	
Plant Factor Based on Nameplate Rating (percent)	9		13		62		53	
Net Peak Demand on Plant - 60 Minutes (MW)	448.0		306.0		1,066.0		828.0	
Net Continuous Plant Capability								
Winter Capability (MW)	486.0		457.0		1,080.0		775.0	
Summer Capability (MW)	486.0		457.0		1,080.0		775.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	878		87		645		603	
Structures and Improvements	5,107		7,232		48,930		9,223	
Equipment	51,388		45,895		528,580		61,800	
Total	57,374		53,215		578,155		71,626	
Cost per kW of Installed Capacity (dollars)	116		112		509		90	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	75	0.19	119	0.21	211	0.03	459	0.12
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	367	.93	395	.71	845	.14	441	.12
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	523	1.33	736	1.33	1,275	.21	524	.14
Miscellaneous Steam Power Expenses	388	.98	776	1.40	443	.07	325	.09
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	123	.31	171	.31	366	.06	194	.05
Maintenance of Structures	112	.28	197	.35	227	.04	226	.06
Maintenance of Boiler Plant	183	.47	317	.57	1,832	.30	783	.21
Maintenance of Electric Plant	272	.69	648	1.17	813	.13	341	.09
Maintenance of Miscellaneous Steam Plant	58	.15	72	.13	180	.03	91	.02
Total, Exclusive of Fuel	2,101	5.33	3,431	6.18	6,192	1.01	3,384	.90
Fuel	8,915	22.62	12,637	22.81	109,384	17.73	95,194	25.89
Total Production Expenses	11,018	27.96	16,067	29.01	115,575	18.74	98,577	26.81
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	3,443.7	31.68	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	8,768	180	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	31.68	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	2.0	15.75	0	0	50.6	28.57
Btu per Gallon; Cents per Million Btu	0	0	135,000	278	0	0	138,000	493
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	15.75	0	0	0	26.12
Gas Burned (MMcf); Cost per Mcf (dollars)	4,261.8	2.09	6,224.2	2.03	100.7	2.73	35,343.7	2.65
Btu per Cubic Foot; Cents per Million Btu	1,029	203	971	209	1,029	266	1,042	254
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	11,127		10,930		9,807		10,099	
Plant Hours Connected to Load	3,912		8,760		8,759		7,067	
Total Number of Units (Exclusive of Auxiliary Units)	2		3		1		1	
Condensing Water Supply	Cooling Towers		Sewage effluent/CT		Wells		Artificial Lake	
Average Number of Employees	50		69		118		48	
Type of Plant Construction	Conventional		Outdoor Boiler		Outdoor		Outdoor	
Initial Year of Plant Operation	1971		1960		1982		1975	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

best copy available

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Texas Utilities Electric Co							
Name of Plant	Graham		Handley		Lake Hubbard		Morgan Creek [1]	
Region and Power Supply Area	V-37		V-37		V-37		V-37	
Location of Plant	Graham TX		Ft. Worth TX		Dallas TX		Colorado City TX	
	General Operating Characteristics							
Installed Generating Capacity (MW)	634.8		1,433.4		927.5		829.6	
Generation (million kWh)	2,043.9		2,248.1		2,821.9		3,230.9	
Plant Factor Based on Nameplate Rating (percent)	37		16		35		44	
Net Peak Demand on Plant - 60 Minutes (MW)	615.0		1,338.0		882.0		807.0	
Net Continuous Plant Capability								
Winter Capability (MW)	615.0		1,375.0		890.0		813.2	
Summer Capability (MW)	615.0		1,375.0		890.0		813.2	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	167		502		1,395		1,190	
Structures and Improvements	9,661		21,399		15,764		15,315	
Equipment	44,444		115,950		79,313		63,093	
Total	54,273		137,851		96,971		79,599	
Cost per kW of Installed Capacity (dollars)	85		96		105		96	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	460	0.23	461	0.21	524	0.19	602	0.19
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	503	.25	737	.33	605	.21	717	.22
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	377	.18	604	.27	648	.23	832	.26
Miscellaneous Steam Power Expenses	410	.20	618	.28	466	.17	546	.17
Rents	8	.00	5	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	235	.11	359	.16	282	.10	224	.07
Maintenance of Structures	261	.13	269	.12	426	.15	280	.09
Maintenance of Boiler Plant	996	.49	3,404	1.51	1,647	.58	2,094	.65
Maintenance of Electric Plant	2,449	1.20	2,328	1.04	2,022	.72	1,582	.49
Maintenance of Miscellaneous Steam Plant	26	.01	96	.04	59	.02	23	.01
Total, Exclusive of Fuel	5,725	2.80	8,881	3.96	6,679	2.37	6,900	2.15
Fuel	56,237	27.51	65,024	28.92	77,856	27.59	88,182	27.29
Total Production Expenses	61,963	30.32	73,907	32.87	84,535	29.96	95,083	29.43
	Fuel Used							
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	114.0	26.46	23.5	28.90	23.1	31.95	18.7	33.27
Btu per Gallon; Cents per Million Btu	148,000	426	138,000	499	145,192	524	148,000	535
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	26.12	0	26.12	0	26.12	0	26.12
Gas Burned (MMcf); Cost per Mcf (dollars)	18,804.7	2.83	24,258.6	2.65	28,859.1	2.67	32,560.9	2.69
Btu per Cubic Foot; Cents per Million Btu	1,109	255	1,039	255	1,047	255	1,049	256
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
	Plant Characteristics							
Average Btu per kWh Net Generation	10,550		11,282		10,755		10,605	
Plant Hours Connected to Load	8,079		7,416		7,842		8,759	
Total Number of Units (Exclusive of Auxiliary Units)	2		5		2		5	
Condensing Water Supply	Brazos Rv/ Art Lake		Arlington Lake /CT		Lake Surface		Champion Creek Res	
Average Number of Employees	51		82		70		78	
Type of Plant Construction	Outdoor		Outdoor		Outdoor		Outdoor	
Initial Year of Plant Operation	1960		1948		1970		1950	

[1] Includes 2.2 megawatts internal combustion capacity.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	**Texas Utilities Electric Co**							
Name of Plant	Mountain Creek		North Lake		North Main		Permian Basin [1]	
Region and Power Supply Area Location of Plant	V-37 Dallas TX		V-37 Dallas TX		V-37 Fort Worth TX		V-37 Monahans TX	
General Operating Characteristics								
Installed Generating Capacity (MW)	958.5		708.6		81.3		651.6	
Generation (million kWh)	2,469.1		1,643.0		46.3		2,948.8	
Plant Factor Based on Nameplate Rating (percent)	29		26		6		52	
Net Peak Demand on Plant - 60 Minutes (MW)	903.0		719.0		85.0		654.0	
Net Continuous Plant Capability								
Winter Capability (MW)	893.0		700.0		80.0		656.1	
Summer Capability (MW)	893.0		700.0		80.0		656.1	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	690		1,302		463		300	
Structures and Improvements	12,998		11,102		3,624		25,105	
Equipment	71,802		55,296		9,769		52,881	
Total	85,490		67,700		13,856		78,285	
Cost per kW of Installed Capacity (dollars)	89		96		171		120	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	776	0.31	522	0.32	244	5.28	430	0.15
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	765	.31	361	.22	304	6.56	435	.15
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	537	.22	497	.30	257	5.56	834	.28
Miscellaneous Steam Power Expenses	570	.23	499	.30	146	3.16	428	.15
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	257	.10	353	.21	47	1.01	186	.06
Maintenance of Structures	486	.20	757	.46	307	6.64	634	.21
Maintenance of Boiler Plant	2,604	1.05	2,733	1.66	315	6.80	2,604	.88
Maintenance of Electric Plant	1,027	.42	2,431	1.48	548	11.83	934	.32
Maintenance of Miscellaneous Steam Plant	74	.03	100	.06	10	.21	109	.04
Total, Exclusive of Fuel	7,096	2.87	8,253	5.01	2,178	47.05	6,594	2.24
Fuel	69,279	28.06	45,482	27.68	1,688	36.46	79,812	27.07
Total Production Expenses	76,374	30.93	53,734	32.70	3,865	83.50	86,405	29.30
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	7.4	32.17	24.4	29.38	2.2	28.83	25.5	31.91
Btu per Gallon; Cents per Million Btu	148,000	518	148,000	473	148,000	464	148,000	513
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	26.12	0	26.12	0	26.12	0	26.12
Gas Burned (MMcf); Cost per Mcf (dollars)	26,008.7	2.66	17,032.1	2.63	612.6	2.65	29,907.8	2.64
Btu per Cubic Foot; Cents per Million Btu	1,040	255	1,024	257	1,040	255	1,027	257
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	10,976		10,706		14,053		10,477	
Plant Hours Connected to Load	7,218		6,753		1,124		8,754	
Total Number of Units (Exclusive of Auxiliary Units)	5		3		1		2	
Condensing Water Supply	Mt. Creek Lake		Trinity Rv/ Lake		River/CT		Well/CT	
Average Number of Employees	85		78		31		65	
Type of Plant Construction	Outdoor Boiler		Outdoor		Outdoor		Outdoor	
Initial Year of Plant Operation	1945		1959		1952		1958	

[1] Includes 1.1 megawatts internal combustion capacity.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Texas Utilities Electric Co							
Name of Plant	Sandow		Stryker Creek [1]		Tradinghouse		Valley	
Region and Power Supply Area Location of Plant	V-37 Dallas TX		V-37 Cherokee County TX		V-37 Riesel TX		V-37 Savoy TX	
General Operating Characteristics								
Installed Generating Capacity (MW)	590.6		713.5		1,379.7		1,175.5	
Generation (million kWh)	4,123.5		3,074.1		5,495.4		3,167.8	
Plant Factor Based on Nameplate Rating (percent)	80		49		45		31	
Net Peak Demand on Plant - 60 Minutes (MW)	583.0		660.0		1,371.0		1,080.0	
Net Continuous Plant Capability								
Winter Capability (MW)	545.0		685.0		1,340.0		1,100.0	
Summer Capability (MW)	545.0		685.0		1,340.0		1,100.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	1		102		1,613		335	
Structures and Improvements	16,003		5,522		12,487		8,126	
Equipment	244,995		45,699		90,150		76,395	
Total	260,999		51,323		104,250		84,856	
Cost per kW of Installed Capacity (dollars)	442		72		76		72	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1,211	0.29	509	0.17	552	0.10	460	0.15
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	2,869	.70	538	.17	667	.12	707	.22
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	754	.18	405	.13	1,026	.19	691	.22
Miscellaneous Steam Power Expenses	2,321	.56	338	.11	381	.07	445	.14
Rents	826	.20	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	1,294	.31	191	.06	339	.06	281	.09
Maintenance of Structures	488	.12	402	.13	267	.05	431	.14
Maintenance of Boiler Plant	11,631	2.82	939	.31	2,866	.52	1,792	.57
Maintenance of Electric Plant	1,352	.33	599	.19	2,650	.48	2,897	.91
Maintenance of Miscellaneous Steam Plant	14	.00	-20	-.01	220	.04	72	.02
Total, Exclusive of Fuel	22,760	5.51	3,901	1.26	8,968	1.63	7,776	2.46
Fuel	8,649	2.10	82,716	26.91	145,463	26.47	88,591	27.97
Total Production Expenses	31,409	7.62	86,617	28.18	154,433	28.10	96,368	30.42
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	[2] 636.1	10.66	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	6,251	85	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	10.66	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	14.0	19.86	8.5	29.59	17.9	29.63	44.2	28.12
Btu per Gallon; Cents per Million Btu	138,000	343	147,558	478	138,000	511	138,000	485
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	26.12	0	26.12	0	26.12	0	26.12
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	30,568.9	2.70	55,340.6	2.62	32,109.9	2.72
Btu per Cubic Foot; Cents per Million Btu	0	0	1,052	256	1,026	255	1,061	256
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	[3] 11,185		10,484		10,352		10,834	
Plant Hours Connected to Load	7,846		8,546		8,666		8,515	
Total Number of Units (Exclusive of Auxiliary Units)	1		2		2		3	
Condensing Water Supply	Alcoa Lake		Angelina River		Cooling Pond		Artificial Lake	
Average Number of Employees	719		56		67		81	
Type of Plant Construction	Outdoor		Outdoor		Outdoor		Outdoor	
Initial Year of Plant Operation	1981		1958		1970		1962	

[1] Includes 10 megawatts internal combustion capacity.

[2] Excludes lignite.

[3] Excludes energy generated from lignite owned and furnished by ALCOA.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	West Texas Utilities Co			
Name of Plant	Abilene [1]	Concho	Fort Phantom	Lake Pauline [1]
Region and Power Supply Area Location of Plant	V-37 Abilene TX	V-37 San Angelo TX	V-37 Abilene TX	V-37 Quanah TX
General Operating Characteristics				
Installed Generating Capacity (MW)	26.3	52.5	363.6	44.4
Generation (million kWh)	.2	15.5	1,393.9	-.3
Plant Factor Based on Nameplate Rating (percent)	–	3	44	–
Net Peak Demand on Plant - 60 Minutes (MW)	18.0	25.0	349.0	43.0
Net Continuous Plant Capability				
Winter Capability (MW)	21.0	52.0	369.0	47.0
Summer Capability (MW)	21.0	50.0	362.0	44.8
Historical Plant Cost (thousand dollars)				
Land and Land Rights	85	14	360	193
Structures and Improvements	1,156	1,180	4,427	1,144
Equipment	3,289	4,628	43,856	3,711
Total	4,530	5,822	48,643	5,048
Cost per kW of Installed Capacity (dollars)	173	111	134	114

Power Production Expenses	Abilene $1,000	Abilene Mills/kWh	Concho $1,000	Concho Mills/kWh	Fort Phantom $1,000	Fort Phantom Mills/kWh	Lake Pauline $1,000	Lake Pauline Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	0	0.00	18	1.15	86	0.06	17	0.00
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	0	.00	0	.00	120	.09	52	.00
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	27	118.90	7	.45	584	.42	136	.00
Miscellaneous Steam Power Expenses	17	78.06	25	1.61	352	.25	119	.00
Rents	0	.00	0	.01	3	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	0	.00	18	1.15	53	.04	17	.00
Maintenance of Structures	3	13.21	5	.32	83	.06	109	.00
Maintenance of Boiler Plant	1	2.29	13	.82	243	.17	44	.00
Maintenance of Electric Plant	2	8.79	3	.19	405	.29	11	.00
Maintenance of Miscellaneous Steam Plant	0	.68	11	.74	26	.02	4	.00
Total, Exclusive of Fuel	50	221.93	100	6.44	1,955	1.40	509	.00
Fuel	34	152.60	574	37.15	24,019	17.23	147	.00
Total Production Expenses	84	374.53	674	43.59	25,975	18.64	656	.00

Fuel Used	Abilene Amount	Abilene Cost	Concho Amount	Concho Cost	Fort Phantom Amount	Fort Phantom Cost	Lake Pauline Amount	Lake Pauline Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	.5	32.68	7.9	32.77	0	0
Btu per Gallon; Cents per Million Btu	0	0	141,226	554	143,658	543	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	NR	0	NR	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	15.0	3.41	225.5	2.46	13,713.4	1.73	43.4	3.56
Btu per Cubic Foot; Cents per Million Btu	1,037	329	1,125	219	1,037	168	1,093	326
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0

Plant Characteristics	Abilene	Concho	Fort Phantom	Lake Pauline
Average Btu per kWh Net Generation	69,487	16,631	10,239	–
Plant Hours Connected to Load	82	1,583	8,760	133
Total Number of Units (Exclusive of Auxiliary Units)	3	4	2	4
Condensing Water Supply	Municipality	Municipality	Lake Surface	Artificial Lake
Average Number of Employees	6	13	38	15
Type of Plant Construction	Conventional	Conventional	Conventional	Conventional
Initial Year of Plant Operation	1921	1927	1974	1928

---

[1] On standby.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	West Texas Utilities Co			
Name of Plant	Oak Creek	Oklaunion	Rio Pecos [1]	San Angelo [2]
Region and Power Supply Area Location of Plant	V-37 Bronte TX	V-37 Wilbarger TX	V-37 Girvin TX	V-37 San Angelo TX
General Operating Characteristics				
Installed Generating Capacity (MW)	81.6	719.5	141.5	133.5
Generation (million kWh)	373.0	2,613.6	1,030.2	650.3
Plant Factor Based on Nameplate Rating (percent)	52	41	83	56
Net Peak Demand on Plant - 60 Minutes (MW)	84.0	691.2	143.0	132.0
Net Continuous Plant Capability				
Winter Capability (MW)	84.0	665.0	140.5	137.0
Summer Capability (MW)	83.0	665.0	139.0	130.0
Historical Plant Cost (thousand dollars)				
Land and Land Rights	89	7,245	73	81
Structures and Improvements	1,054	91,051	3,147	1,182
Equipment	8,588	409,050	16,648	10,686
Total	9,730	507,346	19,868	11,949
Cost per kW of Installed Capacity (dollars)	119	705	140	90

Power Production Expenses	Oak Creek $1,000	Oak Creek Mills/kWh	Oklaunion $1,000	Oklaunion Mills/kWh	Rio Pecos $1,000	Rio Pecos Mills/kWh	San Angelo $1,000	San Angelo Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	17	0.05	173	0.07	27	0.03	39	0.06
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	77	.21	549	.21	43	.04	115	.18
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	312	.84	1,630	.62	694	.67	527	.81
Miscellaneous Steam Power Expenses	219	.59	1,228	.47	246	.24	323	.50
Rents	0	.00	8	.00	0	.00	1	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	45	.12	296	.11	105	.10	76	.12
Maintenance of Structures	62	.17	85	.03	175	.17	130	.20
Maintenance of Boiler Plant	143	.38	1,547	.59	225	.22	119	.18
Maintenance of Electric Plant	551	1.48	1,006	.38	801	.78	540	.83
Maintenance of Miscellaneous Steam Plant	70	.19	629	.24	72	.07	131	.20
Total, Exclusive of Fuel	1,496	4.03	7,151	2.72	2,388	2.32	2,001	3.08
Fuel	6,375	17.09	47,385	18.13	2,487	2.41	17,798	27.37
Total Production Expenses	7,872	21.10	54,536	20.90	4,876	4.73	19,798	30.45
Fuel Used	**Amount**	**Cost**	**Amount**	**Cost**	**Amount**	**Cost**	**Amount**	**Cost**
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	1,643.0	28.17	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	8,274	170	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	28.17	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	3.5	29.03	55.5	21.55	0	0	.9	27.19
Btu per Gallon; Cents per Million Btu	143,449	482	135,765	378	0	0	141,079	459
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	NR	0	21.98	0	0	0	NR
Gas Burned (MMcf); Cost per Mcf (dollars)	3,466.8	1.81	0	0	11,883.5	.21	5,916.8	3.00
Btu per Cubic Foot; Cents per Million Btu	1,125	161	0	0	948	22	1,098	274
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0

Plant Characteristics	Oak Creek	Oklaunion	Rio Pecos	San Angelo
Average Btu per kWh Net Generation	10,516	10,523	10,932	9,996
Plant Hours Connected to Load	6,875	6,227	8,760	7,362
Total Number of Units (Exclusive of Auxiliary Units)	1	-	3	2
Condensing Water Supply	Lake Surface	Lake	Wells/CT	Lake Nasworthy
Average Number of Employees	26	145	38	36
Type of Plant Construction	Outdoor	Conventional	Conventional	Outdoor Boiler
Initial Year of Plant Operation	1962	1986	1927	1965

[1] Combined cycle, includes 5 megawatts gas turbine portion.

[2] Combined cycle.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Utah Power & Light Co						Burlington City of	
Name of Plant	Hale[1]		Hunter (Emery)		Huntington		Joseph C. McNeil	
Region and Power Supply Area Location of Plant	VII-41 Oren UT		VII-41 Castle Dale UT		VII-41 Huntington UT		I-02 Burlington VT	
General Operating Characteristics								
Installed Generating Capacity (MW)	44.0		1,339.2		892.8		50.0	
Generation (million kWh)	-.9		7,658.9		5,113.7		155.9	
Plant Factor Based on Nameplate Rating (percent)	–		65		65		36	
Net Peak Demand on Plant - 60 Minutes (MW)	–		1,238.0		847.0		53.0	
Net Continuous Plant Capability								
Winter Capability (MW)	45.0		1,180.0		815.0		50.0	
Summer Capability (MW)	45.0		1,180.0		815.0		47.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	22		17,733		2,210		278	
Structures and Improvements	2,357		216,564		90,485		17,751	
Equipment	8,143		722,705		259,660		47,208	
Total	10,521		957,002		352,355		65,237	
Cost per kW of Installed Capacity (dollars)	239		715		395		1,305	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	0	0.00	528	0.07	1,024	0.20	127	0.81
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	0	.00	6,087	.79	2,331	.46	465	2.98
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	0	.00	2,420	.32	723	.14	189	1.21
Miscellaneous Steam Power Expenses	24	.00	2,285	.30	1,878	.37	205	1.32
Rents	0	.00	1	.00	1	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	0	.00	1,509	.20	1,249	.24	120	.77
Maintenance of Structures	6	.00	1,104	.14	395	.08	84	.54
Maintenance of Boiler Plant	1	.00	7,560	.99	7,438	1.45	333	2.13
Maintenance of Electric Plant	0	.00	3,355	.44	2,176	.43	183	1.18
Maintenance of Miscellaneous Steam Plant	3	.00	1,571	.21	1,993	.39	27	.18
Total, Exclusive of Fuel	34	.00	26,420	3.46	19,208	3.76	1,733	11.12
Fuel	0	.00	75,416	9.85	54,292	10.62	6,087	39.04
Total Production Expenses	35	.00	101,838	13.30	73,501	14.37	7,821	50.20
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	3,494.0	21.30	2,218.9	24.01	0	0
Btu per Pound; Cents per Million Btu	0	0	11,464	92	11,685	103	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	19.85	0	23.76	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	17.9	21.50	17.3	22.77	25.5	24.36
Btu per Gallon; Cents per Million Btu	0	0	140,000	365	140,000	387	138,095	420
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	18.81	0	21.22	0	NR
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	[2] 205	26.63
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	4,500	296
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	NR
Plant Characteristics								
Average Btu per kWh Net Generation	–		10,473		10,160		12,799	
Plant Hours Connected to Load	–		8,224		7,126		4,239	
Total Number of Units (Exclusive of Auxiliary Units)	1		3		2		2	
Condensing Water Supply	Irrigation Canal		Millsite/Cottonwood		Huntington Rv /CT		Wells	
Average Number of Employees	NR		125		125		47	
Type of Plant Construction	Outdoor		Outdoor Boiler		Outdoor Boiler		Conventional	
Initial Year of Plant Operation	1950		1978		1974		1984	

---

[1] Retired in 1987.

[2] Wood in thousands of tons.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Appalachian Power Co		Potomac Electric Power Co		Virginia Electric & Power Co			
Name of Plant	Clinch River		Potomac River		Chesterfield		Portsmouth	
Region and Power Supply Area Location of Plant	II-10 Carbo VA		I-06 Alexandria VA		III-18 N. Chesterfield VA		III-18 Portsmouth VA	
General Operating Characteristics								
Installed Generating Capacity (MW)	712.5		514.0		1,353.0		650.0	
Generation (million kWh)	3,216.1		1,977.3		6,427.6		3,206.0	
Plant Factor Based on Nameplate Rating (percent)	52		44		54		56	
Net Peak Demand on Plant - 60 Minutes (MW)	695.0		492.0		1,198.0		614.0	
Net Continuous Plant Capability								
Winter Capability (MW)	705.0		480.0		1,280.0		605.0	
Summer Capability (MW)	690.0		480.0		1,250.0		596.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	151		899		572		199	
Structures and Improvements	16,732		19,214		41,262		33,546	
Equipment	113,229		140,784		321,426		247,462	
Total	130,111		160,897		363,260		281,207	
Cost per kW of Installed Capacity (dollars)	183		313		268		433	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1,344	0.42	1,197	0.61	3,318	0.52	1,995	0.62
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	711	.22	2,041	1.03	2,588	.40	1,772	.55
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	390	.12	1,732	.88	790	.12	1,173	.37
Miscellaneous Steam Power Expenses	1,057	.33	1,861	.94	5,159	.80	4,345	1.35
Rents	40	.01	0	.00	46	.01	136	.04
Maintenance Expenses								
Maintenance Supervision and Engineering	513	.16	2,835	1.43	3,204	.50	2,355	.73
Maintenance of Structures	310	.10	641	.32	341	.05	478	.15
Maintenance of Boiler Plant	3,394	1.06	6,068	3.07	8,360	1.30	6,372	1.99
Maintenance of Electric Plant	1,065	.33	2,831	1.43	4,955	.77	3,690	1.15
Maintenance of Miscellaneous Steam Plant	276	.09	690	.35	4,004	.62	1,306	.41
Total, Exclusive of Fuel	9,100	2.84	19,896	10.06	32,765	5.09	23,622	7.36
Fuel	51,610	16.05	37,119	18.77	101,187	15.74	53,563	16.70
Total Production Expenses	60,711	18.88	57,015	28.83	133,951	20.84	77,185	24.06
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	1,165.1	44.18	817.8	44.73	2,516.8	39.69	1,238.2	41.92
Btu per Pound; Cents per Million Btu	12,828	172	12,923	173	12,707	156	12,978	162
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	41.35	0	41.96	0	39.49	0	39.12
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	5.6	21.81	24.3	21.98	62.0	21.07	82.9	20.08
Btu per Gallon; Cents per Million Btu	140,117	370	138,589	375	140,003	358	142,119	336
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	23.54	0	22.18	0	21.64	0	21.20
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	9,306		10,762		[1] 9,956		[1] 10,126	
Plant Hours Connected to Load	8,747		8,790		8,756		5,329	
Total Number of Units (Exclusive of Auxiliary Units)	3		5		6		4	
Condensing Water Supply	Clinch Rv/CT		Potomac River		James River		Elizabeth River	
Average Number of Employees	180		213		421		287	
Type of Plant Construction	Outdoor Boiler		Conventional		Conventional		Outdoor	
Initial Year of Plant Operation	1958		1949		1952		1953	

---

[1] Composite rate for total fuel consumed.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Virginia Electric & Power Co		Pacific Power & Light Co		Washington Water Power Co		Appalachian Power Co	
Name of Plant	Possum Point		Centralia		Kettle Falls		John E Amos	
Region and Power Supply Area Location of Plant	III-18 Dumfries VA		VII-43 Centralia WA		VII-43 Kettle Falls WA		II-10 St. Albans WV	
General Operating Characteristics								
Installed Generating Capacity (MW)	1,373.0		1,330.0		50.7		2,932.6	
Generation (million kWh)	3,356.3		8,172.3		347.9		14,282.1	
Plant Factor Based on Nameplate Rating (percent)	28		70		78		56	
Net Peak Demand on Plant - 60 Minutes (MW)	1,119.0		1,361.0		52.0		2,917.0	
Net Continuous Plant Capability								
Winter Capability (MW)	1,272.0		1,276.0		42.5		2,900.0	
Summer Capability (MW)	1,251.0		1,276.0		42.5		2,900.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	37		1,907		600		2,675	
Structures and Improvements	47,965		48,607		20,997		73,204	
Equipment	258,240		273,622		70,469		594,756	
Total	306,261		324,136		92,066		670,636	
Cost per kW of Installed Capacity (dollars)	223		244		1,816		229	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1,631	0.49	1,735	0.21	123	0.35	3,929	0.28
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	1,602	.48	1,413	.17	264	.82	1,657	.12
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	1,033	.31	629	.08	434	1.25	747	.05
Miscellaneous Steam Power Expenses	3,456	1.03	2,978	.36	248	.71	2,311	.16
Rents	40	.01	0	.00	0	.00	300	.02
Maintenance Expenses								
Maintenance Supervision and Engineering	1,664	.50	2,649	.32	47	.13	1,532	.11
Maintenance of Structures	316	.09	1,469	.18	27	.08	1,105	.08
Maintenance of Boiler Plant	3,491	1.04	8,264	1.01	460	1.32	12,679	.90
Maintenance of Electric Plant	1,161	.35	1,403	.17	69	.20	3,565	.25
Maintenance of Miscellaneous Steam Plant	1,707	.51	1,702	.21	105	.30	1,174	.08
Total, Exclusive of Fuel	16,121	4.81	22,242	2.71	1,795	5.16	29,199	2.05
Fuel	78,344	23.34	137,228	16.79	4,078	11.72	227,142	15.90
Total Production Expenses	94,466	28.15	159,470	19.51	5,873	16.88	256,342	17.95
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	815.1	41.85	5,379.5	25.46	0	0	5,491.5	41.01
Btu per Pound; Cents per Million Btu	12,732	164	8,100	157	0	0	12,300	167
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	40.15	0	27.07	0	0	0	40.56
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	2,379.4	18.59	13.1	21.39	0	0	74.7	24.39
Btu per Gallon; Cents per Million Btu	146,656	302	141,000	361	0	0	138,751	418
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	19.53	0	24.75	0	0	0	25.96
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	3.0	5.95	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	1,043	571	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	[1] 486	8.35	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	4,300	91	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	7.09	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	[2] 10,551		10,673		12,786		9,488	
Plant Hours Connected to Load	8,485		8,604		7,783		8,750	
Total Number of Units (Exclusive of Auxiliary Units)	5		2		1		3	
Condensing Water Supply	Potomac River		Skookumchuck River		Wells		Kanawha Rv/CT	
Average Number of Employees	262		227		32		515	
Type of Plant Construction	Conventional		Semi-OD		Conventional		Outdoor Boiler	
Initial Year of Plant Operation	1948		1972		1983		1971	

---

[1] Wood in thousands of tons.

[2] Composite rate for total fuel consumed.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Appalachian Power Co				Monongahela Power Co			
Name of Plant	Kanawha River		Mountaineer (1301)		Fort Martin		Harrison	
Region and Power Supply Area	II-10		II-07		II-07		II-07	
Location of Plant	Glasgow WV		New Haven WV		Morgantown WV		Haywood WV	
General Operating Characteristics								
Installed Generating Capacity (MW)	439.4		1,300.0		1,152.2		2,052.0	
Generation (million kWh)	1,483.8		7,384.3		7,232.4		12,479.8	
Plant Factor Based on Nameplate Rating (percent)	39		65		72		69	
Net Peak Demand on Plant - 60 Minutes (MW)	430.0		1,311.0		1,121.0		1,905.0	
Net Continuous Plant Capability								
Winter Capability (MW)	400.0		1,300.0		1,107.0		1,920.0	
Summer Capability (MW)	390.0		1,300.0		1,107.0		1,920.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	515		2,578		105		5,458	
Structures and Improvements	14,031		85,966		16,468		54,279	
Equipment	72,804		555,234		209,015		379,308	
Total	87,350		643,778		225,588		439,046	
Cost per kW of Installed Capacity (dollars)	199		495		196		214	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1,068	0.72	1,860	0.25	1,499	0.21	1,451	0.12
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	840	.57	771	.10	767	.11	1,081	.09
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	295	.20	433	.06	301	.04	515	.04
Miscellaneous Steam Power Expenses	883	.60	1,548	.21	1,223	.17	1,241	.10
Rents	13	.01	87	.01	17	.00	11	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	383	.26	768	.10	939	.13	1,093	.09
Maintenance of Structures	511	.34	455	.06	1,702	.24	1,040	.08
Maintenance of Boiler Plant	4,079	2.75	4,357	.59	8,061	1.11	9,000	.72
Maintenance of Electric Plant	1,047	.71	1,380	.19	5,189	.72	3,952	.32
Maintenance of Miscellaneous Steam Plant	218	.15	798	.11	-1,112	-.15	1,411	.11
Total, Exclusive of Fuel	9,337	6.31	12,462	1.68	18,586	2.58	20,795	1.67
Fuel	20,052	13.51	117,788	15.95	100,558	13.90	168,736	13.52
Total Production Expenses	29,389	19.81	130,250	17.64	119,145	16.47	189,531	15.19
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	602.2	33.05	2,730.3	42.74	2,726.6	36.78	4,529.1	37.26
Btu per Pound; Cents per Million Btu	11,788	140	12,616	169	12,434	148	13,147	142
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	31.87	0	43.03	0	35.80	0	36.75
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	5.4	25.91	39.5	26.26	9.9	NR	0	0
Btu per Gallon; Cents per Million Btu	138,748	444	137,426	455	141,000	0	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	26.10	0	24.72	0	26.68	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	9,590		9,360		9,375		9,542	
Plant Hours Connected to Load	6,008		7,559		8,650		8,760	
Total Number of Units (Exclusive of Auxiliary Units)	2		1		2		3	
Condensing Water Supply	Kanawha River		Ohio River		Monongahela Rv /CT		Cooling Towers	
Average Number of Employees	146		252		126		49	
Type of Plant Construction	Conventional		Outdoor Boiler		Semi-OD		Semi-OD	
Initial Year of Plant Operation	1953		1980		1967		1972	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Monongahela Power Co		Ohio Power Co				Virginia Electric & Power Co	
Name of Plant	Pleasants		Kammer		Mitchell		Mt. Storm	
Region and Power Supply Area	II-07		II-09		II-09		III-18	
Location of Plant	Willow Island WV		Cresaps WV		Captina WV		Mt. Storm WV	
General Operating Characteristics								
Installed Generating Capacity (MW)	1,368.0		713.0		1,633.0		1,662.0	
Generation (million kWh)	7,689.7		4,536.2		5,750.4		10,217.6	
Plant Factor Based on Nameplate Rating (percent)	64		73		40		70	
Net Peak Demand on Plant - 60 Minutes (MW)	1,288.0		651.0		1,592.0		1,590.0	
Net Continuous Plant Capability								
Winter Capability (MW)	1,242.0		630.0		1,600.0		1,613.0	
Summer Capability (MW)	1,226.0		600.0		1,600.0		1,574.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	7,071		106		723		785	
Structures and Improvements	108,577		25,032		30,136		71,489	
Equipment	690,601		148,819		331,586		403,225	
Total	806,250		174,018		362,415		475,499	
Cost per kW of Installed Capacity (dollars)	589		244		222		286	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	1,236	0.16	1,246	0.27	1,662	0.29	7,043	0.69
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	2,310	.30	987	.22	1,075	.19	587	.06
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	663	.09	299	.07	501	.09	26	.00
Miscellaneous Steam Power Expenses	1,749	.23	1,408	.31	1,558	.29	7,543	.74
Rents	18	.00	6	.00	19	.00	59	.01
Maintenance Expenses								
Maintenance Supervision and Engineering	1,020	.13	847	.19	1,186	.21	3,227	.32
Maintenance of Structures	1,706	.22	646	.14	542	.09	1,348	.13
Maintenance of Boiler Plant	12,825	1.67	8,293	1.83	8,923	1.55	14,157	1.39
Maintenance of Electric Plant	2,519	.33	1,380	.30	2,461	.43	3,921	.38
Maintenance of Miscellaneous Steam Plant	754	.10	286	.06	743	.13	3,074	.30
Total, Exclusive of Fuel	24,802	3.23	15,398	3.39	18,770	3.27	40,985	4.02
Fuel	108,234	14.08	54,644	12.05	105,523	18.35	137,593	13.47
Total Production Expenses	133,037	17.30	70,042	15.44	124,294	21.61	178,578	17.48
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	3,155.4	34.30	1,846.4	29.51	2,416.4	43.12	4,072.9	33.18
Btu per Pound; Cents per Million Btu	12,163	141	11,914	124	11,932	181	12,294	135
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	28.76	0	29.36	0	40.50	0	31.25
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	3.1	48.61	53.6	24.73	97.6	25.21
Btu per Gallon; Cents per Million Btu	0	0	139,328	831	139,076	423	139,997	429
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	26.16	0	24.98	0	25.56
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	9,982		9,703		10,062		[1] 9,828	
Plant Hours Connected to Load	8,602		8,760		8,517		8,754	
Total Number of Units (Exclusive of Auxiliary Units)	2		3		2		3	
Condensing Water Supply	Ohio River		Ohio River		Ohio River		Artificial Lake	
Average Number of Employees	62		243		253		495	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1979		1958		1971		1965	

[1] Composite rate for total fuel consumed.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Marshfield City of		Northern States Power Co		Wisconsin Electric Power Co			
Name of Plant	Wildwood		Bay Front		Commerce[1]		Pleasant Prairie	
Region and Power Supply Area Location of Plant	IV-13 Marshfield WI		IV-16 Ashland WI		IV-13 Milwaukee WI		IV-13 Kenosha WI	
General Operating Characteristics								
Installed Generating Capacity (MW)	35.0		89.0		35.0		1,234.0	
Generation (million kWh)	29.3		170.1		.1		6,770.2	
Plant Factor Based on Nameplate Rating (percent)	10		22		–		63	
Net Peak Demand on Plant - 60 Minutes (MW)	21.6		72.0		23.0		1,192.0	
Net Continuous Plant Capability								
Winter Capability (MW)	27.0		72.0		27.0		1,160.0	
Summer Capability (MW)	27.0		72.0		31.0		1,160.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	36		24		454		2,614	
Structures and Improvements	1,698		3,422		1,430		132,285	
Equipment	6,023		17,282		3,384		588,623	
Total	7,757		20,728		5,267		723,522	
Cost per kW of Installed Capacity (dollars)	222		233		150		586	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	47	1.60	88	0.52	150	2057.03	382	0.06
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	362	12.35	411	2.42	188	2582.04	1,840	.27
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	301	10.26	223	1.31	161	2204.47	925	.14
Miscellaneous Steam Power Expenses	59	2.00	389	2.29	226	3095.65	3,315	.49
Rents	0	.00	6	.04	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	16	.56	77	.45	183	2512.78	932	.14
Maintenance of Structures	29	1.00	61	.36	33	455.38	1,145	.17
Maintenance of Boiler Plant	238	8.11	1,255	7.38	57	774.33	8,062	1.19
Maintenance of Electric Plant	222	7.58	68	.40	10	133.44	2,434	.36
Maintenance of Miscellaneous Steam Plant	4	.13	32	.19	17	238.58	854	.13
Total, Exclusive of Fuel	1,278	43.57	2,610	15.36	1,025	4053.90	19,889	2.95
Fuel	1,507	51.43	3,585	21.07	124	1698.99	65,693	9.70
Total Production Expenses	2,784	94.99	6,195	36.41	1,150	.00	85,582	12.64
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	20.1	51.31	24.1	50.05	0	0	4,514.3	14.20
Btu per Pound; Cents per Million Btu	12,332	208	12,582	199	0	0	8,329	85
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	41.75	0	48.08	0	0	0	14.20
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	[2] .9	5.77	13.7	20.93
Btu per Gallon; Cents per Million Btu	0	0	0	0	137,578	246	138,064	361
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	5.77	0	20.93
Gas Burned (MMcf); Cost per Mcf (dollars)	61.5	.56	469.1	2.09	26.9	3.63	419.2	2.06
Btu per Cubic Foot; Cents per Million Btu	1,000	560	1,000	209	1,003	362	1,015	301
Other Fuel-Cost per Unit; (see footnote)	0	0	[3] 159	8.73	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	5,208	84	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	7.87	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	19,684		15,993		–		11,182	
Plant Hours Connected to Load	24		8,560		161		8,742	
Total Number of Units (Exclusive of Auxiliary Units)	4		4		1		1	
Condensing Water Supply	Cooling Pond		Lake Superior		Milwaukee River		Lake Michigan	
Average Number of Employees	25		31		14		190	
Type of Plant Construction	Conventional		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1904		1917		1941		1980	

[1] In the process of retiring.
[2] Prior year purchased fuel.
[3] Wood in thousands of tons.
NR=Not reported.
Notes: Totals may not equal sum of components because of independent rounding.
Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Wisconsin Electric Power Co	Wisconsin Power & Light Co		
Name of Plant	South Oak Creek	Blackhawk	Columbia	Edgewater
Region and Power Supply Area Location of Plant	IV-13 Oak Creek WI	IV-13 Beloit WI	IV-13 Portage WI	IV-13 Sheboygan WI
General Operating Characteristics				
Installed Generating Capacity (MW)	1,191.6	50.0	1,024.0	797.0
Generation (million kWh)	4,156.1	1.9	5,285.7	4,314.8
Plant Factor Based on Nameplate Rating (percent)	40	-	59	62
Net Peak Demand on Plant - 60 Minutes (MW)	1,012.0	62.0	1,115.0	876.0
Net Continuous Plant Capability				
Winter Capability (MW)	1,026.0	53.6	1,013.9	769.9
Summer Capability (MW)	1,025.0	51.3	968.8	769.9
Historical Plant Cost (thousand dollars)				
Land and Land Rights	250	205	1,860	6,180
Structures and Improvements	25,133	2,518	57,994	53,311
Equipment	145,493	8,430	273,626	321,024
Total	170,876	11,153	333,480	380,516
Cost per kW of Installed Capacity (dollars)	143	223	326	477

Power Production Expenses	South Oak Creek $1,000	South Oak Creek Mills/kWh	Blackhawk $1,000	Blackhawk Mills/kWh	Columbia $1,000	Columbia Mills/kWh	Edgewater $1,000	Edgewater Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	687	0.17	27	14.76	341	0.06	417	0.10
Coolants and Water	0	.00	0	.00	0	.00	0	.00
Steam Expenses	2,112	.51	49	26.61	1,695	.32	1,571	.36
Steam from Other Sources	0	.00	0	.00	0	.00	0	.00
Steam Transferred (CR)	0	.00	0	.00	0	.00	0	.00
Electric Expenses	1,050	.25	53	28.26	657	.12	578	.13
Miscellaneous Steam Power Expenses	3,836	.92	219	117.58	1,473	.28	1,310	.30
Rents	0	.00	0	.00	0	.00	0	.00
Maintenance Expenses								
Maintenance Supervision and Engineering	2,786	.67	36	19.45	411	.08	544	.13
Maintenance of Structures	1,891	.46	11	5.77	133	.03	47	.01
Maintenance of Boiler Plant	19,326	4.65	17	9.22	4,114	.78	2,738	.63
Maintenance of Electric Plant	4,243	1.02	3	1.83	627	.12	1,420	.33
Maintenance of Miscellaneous Steam Plant	1,448	.35	16	8.64	507	.10	720	.17
Total, Exclusive of Fuel	37,378	9.00	431	232.32	9,958	1.89	9,345	2.16
Fuel	72,581	17.46	120	64.70	91,268	17.27	75,142	17.42
Total Production Expenses	109,960	26.46	552	297.49	101,227	19.15	84,486	19.58

Fuel Used	South Oak Creek Amount	South Oak Creek Cost	Blackhawk Amount	Blackhawk Cost	Columbia Amount	Columbia Cost	Edgewater Amount	Edgewater Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	1,705.8	42.21	0	0	3,245.3	28.00	2,206.6	32.47
Btu per Pound; Cents per Million Btu	12,172	173	0	0	8,723	160	9,474	171
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	42.21	0	0	0	27.33	0	30.26
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	28.3	20.55	0	0	17.0	21.70	11.4	20.36
Btu per Gallon; Cents per Million Btu	138,261	354	0	0	135,050	382	135,050	359
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	20.55	0	0	0	23.18	0	20.72
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	30.8	3.90	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	994	393	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	10.00
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	7,600	638
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	10.00

Plant Characteristics	South Oak Creek	Blackhawk	Columbia	Edgewater
Average Btu per kWh Net Generation	10,032	16,477	10,712	10,144
Plant Hours Connected to Load	8,760	1,250	7,676	7,641
Total Number of Units (Exclusive of Auxiliary Units)	4	2	2	4
Condensing Water Supply	Lake Michigan	Rocky River	Wisconsin River	Lake Michigan
Average Number of Employees	257	13	175	150
Type of Plant Construction	Conventional	Conventional	Conventional	Conventional
Initial Year of Plant Operation	1959	1917	1975	1951

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Black Hills Power & Light Co	Pacific Power & Light Co		
Name of Plant	Osage	Dave Johnston	Jim Bridger	Wyodak
Region and Power Supply Area Location of Plant	VI-26 Osage WY	VI-31 Glen Rock WY	VI-31 Rock Springs WY	VI-27 Gillette WY
General Operating Characteristics				
Installed Generating Capacity (MW)	34.5	750.0	2,034.0	332.0
Generation (million kWh)	233.0	3,878.5	14,417.6	2,484.4
Plant Factor Based on Nameplate Rating (percent)	77	59	81	85
Net Peak Demand on Plant - 60 Minutes (MW)	NR	768.0	1,998.0	338.0
Net Continuous Plant Capability				
Winter Capability (MW)	30.5	750.0	1,940.0	315.0
Summer Capability (MW)	30.5	750.0	1,940.0	315.0
Historical Plant Cost (thousand dollars)				
Land and Land Rights	148	973	1,578	NR
Structures and Improvements	2,638	19,857	180,034	0
Equipment	8,713	203,657	763,869	0
Total	11,499	224,487	945,482	0
Cost per kW of Installed Capacity (dollars)	333	299	465	NR

Power Production Expenses	Osage $1,000	Osage Mills/kWh	Dave Johnston $1,000	Dave Johnston Mills/kWh	Jim Bridger $1,000	Jim Bridger Mills/kWh	Wyodak $1,000	Wyodak Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	53	0.23	1,636	0.42	2,831	0.20	1,125	0.45
Coolants and Water	0	.00	0	.00	0	.00	NR	-
Steam Expenses	291	1.25	1,451	.37	7,960	.55	2,297	.92
Steam from Other Sources	0	.00	0	.00	0	.00	NR	-
Steam Transferred (CR)	0	.00	0	.00	0	.00	NR	-
Electric Expenses	197	.85	874	.23	3,503	.24	369	.15
Miscellaneous Steam Power Expenses	55	.24	1,982	.51	3,517	.24	1,455	.59
Rents	0	.00	6	.00	57	.00	20,869	8.40
Maintenance Expenses								
Maintenance Supervision and Engineering	53	.23	1,904	.49	4,975	.35	1,206	.49
Maintenance of Structures	46	.20	818	.21	3,386	.23	419	.17
Maintenance of Boiler Plant	339	1.45	5,178	1.33	15,942	1.11	2,489	1.00
Maintenance of Electric Plant	206	.89	1,610	.42	2,625	.18	284	.11
Maintenance of Miscellaneous Steam Plant	45	.19	1,067	.28	2,821	.20	670	.27
Total, Exclusive of Fuel	1,285	5.53	16,526	4.26	47,617	3.30	31,183	12.55
Fuel	3,095	13.28	32,034	8.26	166,379	11.54	16,451	6.62
Total Production Expenses	4,380	18.80	48,560	12.52	213,996	14.84	47,635	19.17

Fuel Used	Osage Amount	Osage Cost	Dave Johnston Amount	Dave Johnston Cost	Jim Bridger Amount	Jim Bridger Cost	Wyodak Amount	Wyodak Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	231.7	13.36	2,869.1	11.02	7,977.2	20.73	1,833.8	8.85
Btu per Pound; Cents per Million Btu	8,102	824	7,626	720	9,483	109	8,050	550
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	13.36	0	10.38	0	19.97	0	8.44
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	17.6	23.44	42.7	23.53	8.3	24.33
Btu per Gallon; Cents per Million Btu	0	0	137,390	406	141,000	397	139,330	450
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	23.13	0	24.57	0	24.39
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Other Fuel-Cost per Unit; (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0

Plant Characteristics	Osage	Dave Johnston	Jim Bridger	Wyodak
Average Btu per kWh Net Generation	16,115	11,310	10,511	11,904
Plant Hours Connected to Load	NR	8,760	8,754	8,207
Total Number of Units (Exclusive of Auxiliary Units)	3	4	4	1
Condensing Water Supply	Wells/CT	North Platte River	Green Rv/CT	Gillette Sewage
Average Number of Employees	26	263	508	144
Type of Plant Construction	Conventional	Semi-OD	Semi-OD	Conventional
Initial Year of Plant Operation	1948	1959	1974	1978

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

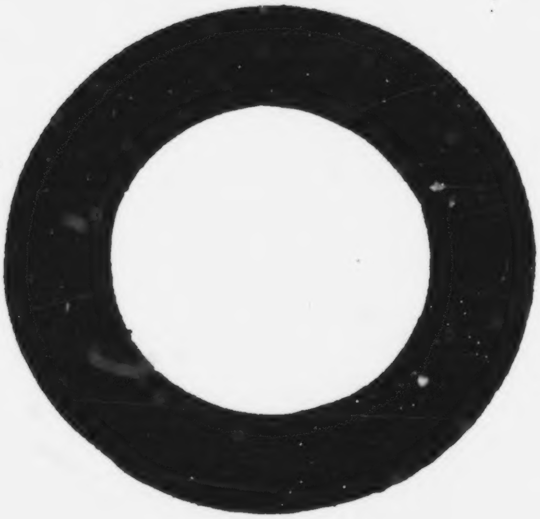
Table 16. Fossil-Fueled Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Utah Power & Light Co							
Name of Plant	Naughton							
Region and Power Supply Area Location of Plant	VII-41 Kammerer WY							
	General Operating Characteristics							
Installed Generating Capacity (MW)	707.2							
Generation (million kWh)	4,030.9							
Plant Factor Based on Nameplate Rating (percent)	65							
Net Peak Demand on Plant - 60 Minutes (MW)	720.0							
Net Continuous Plant Capability								
Winter Capability (MW)	710.0							
Summer Capability (MW)	710.0							
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	327							
Structures and Improvements	30,154							
Equipment	177,162							
Total	207,643							
Cost per kW of Installed Capacity (dollars)	294							
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	549	0.14						
Coolants and Water	0	.00						
Steam Expenses	2,517	.62						
Steam from Other Sources	0	.00						
Steam Transferred (CR)	0	.00						
Electric Expenses	1,217	.30						
Miscellaneous Steam Power Expenses	1,708	.42						
Rents	3	.00						
Maintenance Expenses								
Maintenance Supervision and Engineering	1,059	.26						
Maintenance of Structures	626	.16						
Maintenance of Boiler Plant	4,999	1.24						
Maintenance of Electric Plant	1,572	.39						
Maintenance of Miscellaneous Steam Plant	965	.24						
Total, Exclusive of Fuel	15,217	3.77						
Fuel	52,001	12.90						
Total Production Expenses	67,218	16.67						
	Fuel Used							
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	2,200.9	23.21						
Btu per Pound; Cents per Million Btu	9,406	123						
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	22.80						
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	7.4	23.78						
Btu per Gallon; Cents per Million Btu	140,000	404						
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	21.94						
Gas Burned (MMcf); Cost per Mcf (dollars)	69.8	3.32						
Btu per Cubic Foot; Cents per Million Btu	1,019	326						
Other Fuel-Cost per Unit; (see footnote)	0	0						
Thousand Btu per Unit, Cents per Million Btu	0	0						
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0						
	Plant Characteristics							
Average Btu per kWh Net Generation	10,305							
Plant Hours Connected to Load	7,978							
Total Number of Units (Exclusive of Auxiliary Units)	3							
Condensing Water Supply	Hams Fork Rv/CT							
Average Number of Employees	75							
Type of Plant Construction	Outdoor Boiler							
Initial Year of Plant Operation	1963							

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."



Gas-Turbine Electric Plants

The George M. Sullivan gas turbine plant is located in Anchorage, Alaska and is operated by the City of Anchorage.

Gas Turbine Electric Plants

A total of 526 electric utility gas turbine electric generating plants operated in the United States during 1987, of which 57 are represented in this report. Although the number of plants represented is small, they accounted for 8,392 gigawatthours in 1987; 51 percent of total gas-turbine generation, but less than one percent of the total generation from all U.S. electric utilities.

The 57 gas-turbine plants listed in Table 18 are generally the larger plants used primarily to supplement the generation of electricity at fossil-fuel, nuclear, and hydroelectric plants. Some gas-turbine plants listed, however, including those in Alaska, are the primary source of electricity for their areas. The extreme environmental conditions in Alaska, which limit condenser water necessary for steam-electric plants and hinder construction of the larger steam plants, make gas-turbine plant construction more feasible. The size and low concentration of load centers and the isolated operation of electric utilities in Alaska contribute to the use of gas turbines for baseload electric generation.

Although gas turbines are generally not as economical as baseload steam plants, in terms of fuel and operation expenses per kilowatthour of electricity produced, they provide operational flexibility to meet peak demand loads with minimal investment and construction lead-times. Gas turbine plants usually require one-third the lead-time; and the cost of construction per kilowatt can be considerably less than the larger fossil-fuel steam plants. Due to their short start-up times, usually 15 minutes or less, gas-turbine plants are used to provide electricity during emergencies caused by forced outages of baseload plants. Further, many gas turbines are operated automatically from remote sites, thereby requiring no employees at the plant site.

Operating Statistics

In 1987, the weighted (by net generation) production expenses for the 57 gas-turbine plants, averaged 47.19 mills per kilowatthour. Fuel expenses accounted for about 69 percent of production expenses, averaging 32.71 mills per kilowatthour; operation expenses averaged 5.03 mills per kilowatthour; and maintenance expenses averaged 9.46 mills per kilowatthour. These production expenses are summarized in Table 17.

The 1987 weighted average heat rate for the 57 gas-turbine plants was 12,673 Btu per kilowatthour and the weighted average capacity factor was 5.2 percent.

The industry experienced a substantial decline in fossil-fuel costs from 1985 to 1986 that continued to drop in 1987. The reduction in the costs of fossil-fuel and small decreases in both average operation and maintenance expenses, resulted in an overall decrease in average production expenses of 1.46 mills per kilowatthour from 1986.

On a per kilowatthour basis, when generation decreases (capacity constant), operation and maintenance expenses usually increase, because most operation and maintenance expenses are generally independent of the amount of generation. This increase causes an increase in average production expenses. However, fuel costs decreased so substantially in 1986 that they overwhelmed the relationship between lower generation and higher operation and maintenance expenses resulting in total production costs lower in 1986 than 1985. In 1987 all three components of average production expenses declined.

Three plants considered in this section, George M. Sullivan, T. H. Wharton, and Celanese, have significantly lower than average production expenses, partly because they are combined cycle plants. (The combined cycle process increases the efficiency of an electric generating system by turning rejected heat into thermal steam, rather than discharging it into the atmosphere.) George M. Sullivan plant, with a 1987 capacity factor of 46 percent, is a principal component of the capacity operated by the City of Anchorage. T. H. Wharton is one of the largest gas-turbine plants in the United States with a capacity factor of 18 percent, almost four times the capacity factor of an average gas turbine plant. Celanese, located at a manufacturing and cogeneration facility, is operated on hot nitrogen (inert) gas, a by-product of the facility. When these three combined cycle plants are excluded, the average production expenses for the remaining 54 gas turbine plants are 69.94 mills per kilowatthour.

From 1982 to 1986, the lowest weighted average operation and maintenance expenses occurred in 1984, in part due to the 6.9 percent weighted capacity factor (revised since the 1984 publication) for that year. The capacity factor for 1982 and 1983 was approximately 6.3 percent. It dropped to 5.9 percent in 1985. A further drop in 1986 to 5.0 put it at its lowest level in the 5-year reporting period. Because gas turbines had their lowest capacity factors of the 6-year period in 1986 and 1987, they also had the highest average operation and maintenance expenses of that period.

Historical Plant Cost and Operating Statistics for New Plants

There were no new gas-turbine plants that started commercial operation in 1987. New gas-turbine units were added to existing power plants, but these plants are not part of the original selection and as such are not covered in this report.

The Walnut plant in California, was the only gas turbine plant to go into commercial operation in 1986. Its production expenses for the first full year of operation averaged 58.07 mills per kilowatthour. Fuel accounted for 84 percent of its average production expenses, equalling 48.76 mills per kilowatthour.

Table 17. Average Annual Production Expenses for Gas-Turbine Electric Plants, Weighted by Net Generation, 1982-1987

(Mills per Kilowatthour)

Year	Operation	Maintenance	Fuel	Total
1982	4.57	7.67	47.26	59.50
1983	4.46	6.77	45.38	56.61
1984	3.93	6.14	41.18	51.24
1985	4.66	7.89	40.05	52.60
1986	5.17	9.75	33.73	48.65
1987	5.03	9.46	32.71	47.19

Notes: •Totals may not equal sum of components because of independent rounding. •Weighted average production expenses for 1982-1984 have been revised to include only those units within the sample that generated power in the indicated year.

Source: Federal Energy Regulatory Commission FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration Form EIA-412, "Annual Report of Public Electric Utilities."

Table 18. Gas-Turbine Electric Plant Cost and Production Expenses, by Plant, 1987

Name of Utility	Anchorage City of				Arizona Public Service Co			
Name of Plant	Anchorage No 1 [1]		George M Sullivan		Ocotillo		Phoenix	
Region and Power Supply Area Location of Plant	IX-49 Anchorage AK		IX-49 Anchorage AK		VIII-48 Tempe AZ		VIII-48 Phoenix AZ	
General Operating Characteristics								
Installed Generating Capacity (MW)	79.4		219.9		106.0		106.0	
Generation (million kWh)	22.1		895.5		3.3		3.7	
Net Peak Demand on Plant - 60 Minutes (MW)	30.0		162.0		73.0		115.0	
Net Continuous Plant Capability								
Winter Capability (MW)	85.0		242.9		111.8		112.4	
Summer Capability (MW)	76.8		222.9		111.8		112.4	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	49		10		0		6	
Structures and Improvements	1,297		6,317		334		511	
Equipment	16,210		59,022		10,634		12,786	
Total	17,555		65,349		10,969		13,304	
Cost per kW of Installed Capacity (dollars)	221		297		103		126	
Power Production Expenses	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	69	3.15	283	0.32	12	3.69	22	5.98
Electric Expenses	624	28.29	1,078	1.20	45	13.77	143	38.20
Miscellaneous Power Expenses	0	0	30	.03	4	1.14	48	12.84
Rents	0	0	0	0	0	0	0	0
Maintenance Expenses								
Maintenance Supervision and Engineering	74	3.34	187	.21	5	1.64	30	7.95
Maintenance of Structures	19	.85	32	.04	0	0	0	0
Maintenance of Electric Equipment	333	15.12	627	.70	483	146.77	122	32.79
Miscellaneous Power Generation Expenses	0	0	18	.02	55	16.63	7	1.74
Total, Exclusive of Fuel	1,119	50.75	2,255	2.52	604	183.64	372	99.50
Fuel	789	35.79	17,543	19.59	166	50.48	174	46.70
Total Production Expenses	1,909	86.54	20,294	22.66	770	234.12	546	146.20
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Oil Burned (1,000 bbls); Cost per Barrel (dollars)	0	22.94	0	35.16	0	59.77	0	23.18
Btu per Gallon; Cents per Million Btu	133,500	409	133,500	627	138,128	1,038	138,095	400
Cost per Barrel, as Delivered F.O.B. Plant (dollars)	0	22.94	0	35.16	0	23.74	0	22.73
Gas Burned (MMcf); Cost per Mcf (dollars)	433.2	1.83	9,602.2	1.83	53.8	2.76	57.7	2.71
Btu per Cubic Foot; Cents per Million Btu	1,000	183	1,000	183	1,040	265	1,039	261
Other Fuel; Cost per Unit (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	19,741		10,723		17,531		17,261	
Plant Hours Connected to Load	2,051		8,760		125		161	
Total Number of Units (Exclusive of Auxiliary Units)	4		4		2		2	
Type of Operation	Remote		Remote		Automatic		Automatic	
Average Number of Employees	30		16		4		15	
Planned Ultimate Capacity	-		-		-		-	
Type of Plant Construction	Conventional		Conventional		Full-Outdoor		Outdoor	
Initial Year of Plant Operation	1962		1975		1972		1972	

[1] Costs include internal combustion units; capabilities do not.

Notes: Totals may not equal sum of components because of independent rounding.

NR = Not reported.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 18. Gas-Turbine Electric Plant Cost and Production Expenses, by Plant, 1987

Name of Utility	Arizona Public Service Co				Glendale City of		Pacific Gas & Electric Co	
Name of Plant	Saguaro		Yucca		Grayson		Oakland	
Region and Power Supply Area Location of Plant	VIII-48 Red Rock AZ		VIII-48 Yuma AZ		VIII-47 Glendale CA		VIII-46 Oakland CA	
	General Operating Characteristics							
Installed Generating Capacity (MW)	106.0		192.0		53.0		201.2	
Generation (million kWh)	4.2		4.1		1.7		5.5	
Net Peak Demand on Plant - 60 Minutes (MW)	104.0		90.0		NR		172.0	
Net Continuous Plant Capability								
Winter Capability (MW)	109.0		146.7		53.0		182.0	
Summer Capability (MW)	109.0		146.7		53.0		162.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	0		0		0		4	
Structures and Improvements	481		141		0		3,175	
Equipment	12,305		17,635		0		27,829	
Total	12,785		17,776		0		31,008	
Cost per kW of Installed Capacity (dollars)	121		93		0		154	
	Power Production Expenses							
	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	8	1.95	8	2.06	48	28.14	38	7.04
Electric Expenses	7	1.78	11	2.70	0	0	79	14.46
Miscellaneous Power Expenses	155	37.15	21	5.10	0	.02	68	12.50
Rents	0	0	0	0	0	0	0	0
Maintenance Expenses								
Maintenance Supervision and Engineering	12	2.88	42	10.32	0	.15	29	5.25
Maintenance of Structures	0	.04	112	27.42	0	0	0	.07
Maintenance of Electric Equipment	56	13.51	54	13.15	0	0	56	10.32
Miscellaneous Power Generation Expenses	0	0	20	4.90	0	0	105	19.27
Total, Exclusive of Fuel	238	57.31	268	65.65	48	28.31	375	68.91
Fuel	225	54.10	165	40.41	74	43.80	199	36.46
Total Production Expenses	463	111.40	432	106.06	123	72.18	574	105.00
	Fuel Used							
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Oil Burned (1,000 bbls); Cost per Barrel (dollars)	0	23.27	0	21.22	0	35.57	11	15.39
Btu per Gallon; Cents per Million Btu	131,019	423	136,320	371	139,095	614	128,475	285
Cost per Barrel, as Delivered F.O.B. Plant (dollars)	0	23.27	0	21.22	0	35.57	0	NR
Gas Burned (MMcf); Cost per Mcf (dollars)	85.3	2.59	65.2	2.25	27.8	2.55	0	0
Btu per Cubic Foot; Cents per Million Btu	1,032	251	1,031	219	1,052	242	0	0
Other Fuel; Cost per Unit (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
	Plant Characteristics							
Average Btu per kWh Net Generation	21,399		17,672		17,464		12,756	
Plant Hours Connected to Load	165		170		4,748		63	
Total Number of Units (Exclusive of Auxiliary Units)	2		4		2		3	
Type of Operation	Automatic		Automatic		Attended		Remote	
Average Number of Employees	4		4		72		[1] NR	
Planned Ultimate Capacity	–		–		–		–	
Type of Plant Construction	Full-Outdoor		Outdoor		Full-Outdoor		Conventional	
Initial Year of Plant Operation	1972		1971		1972		1978	

[1] Operated remotely from Oakland Substation "C".

Notes: Totals may not equal sum of components because of independent rounding.

NR = Not reported.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 18. Gas-Turbine Electric Plant Cost and Production Expenses, by Plant, 1987 (Continued)

Name of Utility	Pacific Gas & Electric Co		San Diego Gas & Electric Co					
Name of Plant	Potrero		Naval Station		Naval Training Cnt		North Island	
Region and Power Supply Area Location of Plant	VIII-46 San Francisco CA		VIII-47 San Diego CA		VIII-47 San Diego CA		VIII-47 San Diego CA	
	General Operating Characteristics							
Installed Generating Capacity (MW)	201.1		28.0		18.0		39.0	
Generation (million kWh)	30.2		198.1		132.1		166.3	
Net Peak Demand on Plant - 60 Minutes (MW)	16.7		NR		NR		NR	
Net Continuous Plant Capability								
Winter Capability (MW)	161.0		29.0		20.0		46.0	
Summer Capability (MW)	154.0		23.0		16.0		41.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	0		0		0		0	
Structures and Improvements	15		193		65		243	
Equipment	20,564		5,772		2,226		4,672	
Total	20,578		5,964		2,290		4,916	
Cost per kW of Installed Capacity (dollars)	102		213		127		126	
	Power Production Expenses							
	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	24	0.79	0	0	0	0	1	0
Electric Expenses	125	4.14	16	.08	16	.12	25	.15
Miscellaneous Power Expenses	49	1.62	0	0	0	0	0	0
Rents	0	0	0	0	0	0	0	0
Maintenance Expenses								
Maintenance Supervision and Engineering	49	1.64	12	.06	8	.06	16	.10
Maintenance of Structures	1	.02	223	1.12	12	.09	23	.14
Maintenance of Electric Equipment	126	4.17	250	1.26	80	.60	221	1.33
Miscellaneous Power Generation Expenses	118	3.90	0	0	0	0	0	0
Total, Exclusive of Fuel	492	16.28	501	2.52	116	.87	286	1.72
Fuel	1,536	50.67	6,309	31.85	5,080	38.45	6,140	36.92
Total Production Expenses	2,028	67.00	6,810	34.38	5,196	39.33	6,426	38.64
	Fuel Used							
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Oil Burned (1,000 bbls); Cost per Barrel (dollars)	7,361	19.56	0	23.06	0	23.06	1	23.06
Btu per Gallon; Cents per Million Btu	139,631	334	137,821	391	136,954	391	137,924	391
Cost per Barrel, as Delivered F.O.B. Plant (dollars)	0	NR	0	NR	0	NR	0	NR
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	2,537.9	3.13	2,053.9	3.13	2,455.1	3.13
Btu per Cubic Foot; Cents per Million Btu	0	0	1,030	304	1,030	304	1,030	304
Other Fuel; Cost per Unit (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
	Plant Characteristics							
Average Btu per kWh Net Generation	15,233		12,596		15,284		14,575	
Plant Hours Connected to Load	400		8,028		8,354		8,521	
Total Number of Units (Exclusive of Auxiliary Units)	3		1		1		2	
Type of Operation	Remote		Remote		Remote		Remote	
Average Number of Employees	[1] NR		NR		NR		NR	
Planned Ultimate Capacity	-		-		-		-	
Type of Plant Construction	Conventional		Outdoor		Outdoor		Outdoor	
Initial Year of Plant Operation	1976		1976		1968		1972	

[1] Operated remotely from Potrero No. 3.

Notes: Totals may not equal sum of components because of independent rounding.

NR=Not reported.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 18. Gas-Turbine Electric Plant Cost and Production Expenses, by Plant, 1987 (Continued)

Name of Utility	Turlock Irrigation District		Florida Power Corp					
Name of Plant	Walnut		Debary		Intercession City		Suwannee River	
Region and Power Supply Area Location of Plant	VIII-46 Turlock CA		III-24 De Bary FL		III-24 Intercession City FL		III-24 Elaville FL	
General Operating Characteristics								
Installed Generating Capacity (MW)	49.9		401.4		340.2		183.6	
Generation (million kWh)	24.7		58.0		51.3		32.7	
Net Peak Demand on Plant - 60 Minutes (MW)	46.6		126.0		201.0		103.0	
Net Continuous Plant Capability								
Winter Capability (MW)	25.0		330.0		342.0		195.0	
Summer Capability (MW)	23.5		282.0		276.0		159.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	0		2,082		0		0	
Structures and Improvements	14,861		3,429		2,123		1,391	
Equipment	150		46,997		23,255		25,523	
Total	15,011		52,509		25,379		26,914	
Cost per kW of Installed Capacity (dollars)	301		131		75		147	
Power Production Expenses	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	46	1.86	115	1.99	33	0.64	8	0.25
Electric Expenses	0	0	0	0	0	0	0	0
Miscellaneous Power Expenses	13	.54	205	3.54	100	1.94	9	.27
Rents	0	0	0	0	0	0	0	0
Maintenance Expenses								
Maintenance Supervision and Engineering	0	0	156	2.69	43	.84	21	.64
Maintenance of Structures	18	.71	290	5.00	102	1.98	2	.07
Maintenance of Electric Equipment	58	2.34	767	13.22	399	7.79	140	4.30
Miscellaneous Power Generation Expenses	95	3.84	341	5.89	33	.64	64	1.95
Total, Exclusive of Fuel	230	9.29	1,874	32.33	710	13.83	244	7.48
Fuel	1,203	48.76	3,484	60.09	3,088	60.23	1,901	58.19
Total Production Expenses	1,433	58.06	5,490	94.69	3,819	74.47	2,154	65.94
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Oil Burned (1,000 bbls); Cost per Barrel (dollars)	0	0	147	23.65	121	25.52	77	24.68
Btu per Gallon; Cents per Million Btu	0	0	142,360	396	139,598	435	139,630	421
Cost per Barrel, as Delivered F.O.B. Plant (dollars)	0	0	0	23.03	0	23.08	0	24.37
Gas Burned (MMcf); Cost per Mcf (dollars)	410.1	2.93	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	1,021	287	0	0	0	0	0	0
Other Fuel; Cost per Unit (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	16,964		15,192		13,839		13,829	
Plant Hours Connected to Load	6,760		436		360		388	
Total Number of Units (Exclusive of Auxiliary Units)	-		6		6		3	
Type of Operation	Remote		Attended		Attended		Automatic	
Average Number of Employees	2		17		4		4	
Planned Ultimate Capacity	-		-		-		-	
Type of Plant Construction	Outdoor		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1986		1975		1974		1980	

Notes: Totals may not equal sum of components because of independent rounding.

NR = Not reported.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 18. Gas-Turbine Electric Plant Cost and Production Expenses, by Plant, 1987 (Continued)

Name of Utility	Florida Power & Light Co				Tampa Electric Co		Commonwealth Edison Co	
Name of Plant	Fort Myers		Lauderdale		Big Bend		Calumet	
Region and Power Supply Area	III-24		III-24		III-24		IV-14	
Location of Plant	Fort Myers FL		Dania FL		Tampa FL		Chicago IL	
General Operating Characteristics								
Installed Generating Capacity (MW)	744.0		821.5		175.5		[1] 297.0	
Generation (million kWh)	16.4		94.4		20.9		5.4	
Net Peak Demand on Plant - 60 Minutes (MW)	470.0		882.0		6.7		131.0	
Net Continuous Plant Capability								
Winter Capability (MW)	756.0		972.0		144.0		[1] 275.7	
Summer Capability (MW)	618.0		852.0		144.0		[1] 219.6	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	0		0		834		663	
Structures and Improvements	15,946		4,271		1,483		518	
Equipment	42,076		72,850		17,567		16,648	
Total	58,022		77,121		19,885		17,857	
Cost per kW of Installed Capacity (dollars)	78		94		113		60	
Power Production Expenses	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	88	5.39	149	1.57	0	0	0	0
Electric Expenses	0	0	0	0	2	.08	117	21.45
Miscellaneous Power Expenses	0	0	0	0	0	0	0	0
Rents	0	0	0	0	0	0	0	0
Maintenance Expenses								
Maintenance Supervision and Engineering	254	15.52	547	5.79	0	0	7[illegible]	12.79
Maintenance of Structures	62	3.77	236	2.50	4	.18	109	19.98
Maintenance of Electric Equipment	318	19.44	2,046	21.66	154	7.35	233	42.77
Miscellaneous Power Generation Expenses	72	4.38	152	1.61	1	.06	0	0
Total, Exclusive of Fuel	794	48.50	3,130	33.13	161	7.67	529	96.99
Fuel	1,150	70.30	4,905	51.93	1,370	65.49	520	95.42
Total Production Expenses	2,222	135.82	8,486	89.87	1,530	73.16	1,048	192.42
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Oil Burned (1,000 bbls); Cost per Barrel (dollars)	41	27.88	18	35.38	60	22.59	3	38.62
Btu per Gallon; Cents per Million Btu	138,928	478	137,857	611	138,618	388	139,222	660
Cost per Barrel, as Delivered F.O.B. Plant (dollars)	0	27.88	0	35.38	0	22.[illegible]	0	22.83
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	1,520.2	2.79	0	0	72.4	5.15
Btu per Cubic Foot; Cents per Million Btu	0	0	1,000	279	0	0	1,026	485
Other Fuel; Cost per Unit (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	14,713		17,241		16,880		18,068	
Plant Hours Connected to Load	98		402		665		146	
Total Number of Units (Exclusive of Auxiliary Units)	12		24		3		16	
Type of Operation	Attended		Attended		Attended		Remote	
Average Number of Employees	[2] NR		[2] NR		3		-	
Planned Ultimate Capacity	-		-		-		-	
Type of Plant Construction	Conventional		Conventional		Full-Outdoor		Full-Outdoor	
Initial Year of Plant Operation	1974		1970		1969		1969	

[1] Includes 92.1 megawatts indefinitely removed from service.

[2] Included in steam plant.

Notes: Totals may not equal sum of components because of independent rounding.

NR = Not reported.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 18. Gas-Turbine Electric Plant Cost and Production Expenses, by Plant, 1987 (Continued)

Name of Utility	Commonwealth Edison Co						Northern Indiana Pub Serv Co	
Name of Plant	Crawford		Electric Junction		Joliet 9		R M Schahfer	
Region and Power Supply Area Location of Plant	IV-14 Chicago IL		IV-14 North Aurora IL		IV-14 Joliet IL		II-12 Wheatfield IN	
General Operating Characteristics								
Installed Generating Capacity (MW)	208.0		[1] 304.0		147.0		258.0	
Generation (million kWh)	4.4		5.6		2.5		1.1	
Net Peak Demand on Plant - 60 Minutes (MW)	92.0		132.0		69.0		2.0	
Net Continuous Plant Capability								
Winter Capability (MW)	168.9		[1] 242.6		130.6		155.0	
Summer Capability (MW)	148.8		[1] 193.5		102.9		155.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	0		201		0		9	
Structures and Improvements	112		789		121		2,125	
Equipment	17,544		19,437		11,602		41,793	
Total	17,656		20,427		11,723		43,927	
Cost per kW of Installed Capacity (dollars)	85		67		80		170	
Power Production Expenses	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	0	0	0	0	0	0	0	0.01
Electric Expenses	0	.05	52	9.36	39	15.67	0	0
Miscellaneous Power Expenses	0	0	0	0	0	0	0	0
Rents	0	0	0	0	0	0	135	120.25
Maintenance Expenses								
Maintenance Supervision and Engineering	0	0	69	12.51	0	0	0	0
Maintenance of Structures	4	.83	51	9.22	10	4.07	0	.06
Maintenance of Electric Equipment	49	11.10	138	24.93	46	18.72	214	190.15
Miscellaneous Power Generation Expenses	0	0	0	0	0	0	0	0
Total, Exclusive of Fuel	53	11.98	310	56.02	95	38.46	349	310.47
Fuel	367	82.54	512	92.22	275	110.87	120	106.59
Total Production Expenses	420	94.52	823	148.23	371	149.30	469	417.06
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Oil Burned (1,000 bbls); Cost per Barrel (dollars)	2	29.81	11	27.39	8	31.47	0	35.70
Btu per Gallon; Cents per Million Btu	140,376	505	141,234	462	141,122	531	139,000	611
Cost per Barrel, as Delivered F.O.B. Plant (dollars)	0	NR	0	24.25	0	23.96	0	23.27
Gas Burned (MMcf); Cost per Mcf (dollars)	60.4	4.99	43.6	4.57	1.4	18.00	43.4	2.72
Btu per Cubic Foot; Cents per Million Btu	1,024	487	1,020	448	1,046	1,529	1,026	265
Other Fuel; Cost per Unit (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	16,835		20,223		19,702		40,100	
Plant Hours Connected to Load	144		153		105		73	
Total Number of Units (Exclusive of Auxiliary Units)	12		16		8		2	
Type of Operation	Remote		Remote		Remote		Automatic	
Average Number of Employees	NR		NR		NR		NR	
Planned Ultimate Capacity	-		-		-		-	
Type of Plant Construction	Full-Outdoor		Full-Outdoor		Full-Outdoor		Conventional	
Initial Year of Plant Operation	1968		1970		1969		1972	

[1] Includes 76 megawatts indefinitely removed from service.

Notes: Totals may not equal sum of components because of independent rounding.

NR = Not reported.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 18. Gas-Turbine Electric Plant Cost and Production Expenses, by Plant, 1987 (Continued)

Name of Utility	McPherson Water City of		Potomac Electric Power Co		Consumers Power Co		Detroit Edison Co	
Name of Plant	McPherson No 2		Morgantown		Thetford		Hancock	
Region and Power Supply Area Location of Plant	V-29 McPherson KS		I-06 Morgantown MD		II-11 No. of Flint MI		II-11 Commerce TWP MI	
General Operating Characteristics								
Installed Generating Capacity (MW)	170.4		296.0		237.0		160.3	
Generation (million kWh)	5.1		59.2		3.6		3.0	
Net Peak Demand on Plant - 60 Minutes (MW)	154.0		292.0		205.0		142.0	
Net Continuous Plant Capability								
Winter Capability (MW)	180.0		300.0		264.7		183.0	
Summer Capability (MW)	155.8		248.0		222.5		141.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	0		0		126		0	
Structures and Improvements	0		401		398		204	
Equipment	17,999		26,748		19,713		13,046	
Total	17,999		27,148		20,237		13,250	
Cost per kW of Installed Capacity (dollars)	106		92		85		83	
Power Production Expenses	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	16	3.12	11	0.19	36	9.85	0	0
Electric Expenses	202	39.50	65	1.10	32	8.77	6	2.01
Miscellaneous Power Expenses	46	8.93	0	0	39	10.72	0	0
Rents	0	0	0	0	0	0	0	0
Maintenance Expenses								
Maintenance Supervision and Engineering	12	2.34	14	.24	85	23.47	36	12.50
Maintenance of Structures	0	0	0	0	12	3.34	18	6.02
Maintenance of Electric Equipment	68	13.28	316	5.33	208	57.48	344	113.87
Miscellaneous Power Generation Expenses	36	7.08	0	0	0	0	0	0
Total, Exclusive of Fuel	380	74.25	406	6.86	412	113.61	406	134.40
Fuel	283	55.46	3,056	51.60	330	91.38	281	93.09
Total Production Expenses	663	129.71	3,462	58.46	741	204.99	687	227.50
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Oil Burned (1,000 bbls); Cost per Barrel (dollars)	[1] 0	13.44	144	21.20	0	0	0	0
Btu per Gallon; Cents per Million Btu	129,200	250	138,211	365	0	0	0	0
Cost per Barrel, as Delivered F.O.B. Plant (dollars)	0	13.44	0	22.06	0	0	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	[1] 69.7	2.06	0	0	83.1	3.97	[illegible]	4.04
Btu per Cubic Foot; Cents per Million Btu	980	214	0	0	1,024	388	1,024	395
Other Fuel; Cost per Unit (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	13,301		14,128		23,545		23,584	
Plant Hours Connected to Load	145		494		398		8,760	
Total Number of Units (Exclusive of Auxiliary Units)	3		6		9		6	
Type of Operation	Automatic		Attended		Automatic		Automatic	
Average Number of Employees	2		[2] NR		6		NR	
Planned Ultimate Capacity	-		-		-		-	
Type of Plant Construction	Full-Outdoor		Conventional		Conventional		Full-Outdoor	
Initial Year of Plant Operation	1973		1970		1970		1967	

[1] Estimated.

[2] Number of employees included with Morgantown steam.

Notes: Totals may not equal sum of components because of independent rounding.

NR = Not reported.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 18. Gas-Turbine Electric Plant Cost and Production Expenses, by Plant, 1987 (Continued)

Name of Utility	Detroit Edison Co		Mississippi Power Co		Nevada Power Co		Atlantic City Electric Co	
Name of Plant	Northeast		Standard Oil		Clark		Mickleton	
Region and Power Supply Area	II-11		III-22		VIII-48		I-05	
Location of Plant	Warren	MI	Nr. Pascagula	MS	Whitney	NV	Glouster	NJ
General Operating Characteristics								
Installed Generating Capacity (MW)	129.9		33.0		420.0		71.2	
Generation (million kWh)	1.8		223.5		53.5		34.6	
Net Peak Demand on Plant - 60 Minutes (MW)	94.0		30.4		277.0		7.2	
Net Continuous Plant Capability								
Winter Capability (MW)	150.0		17.9		371.0		79.0	
Summer Capability (MW)	115.0		15.2		330.0		59.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	0		0		0		18	
Structures and Improvements	117		361		4,171		505	
Equipment	10,780		4,769		61,829		929	
Total	10,897		5,130		66,000		1,452	
Cost per kW of Installed Capacity (dollars)	84		155		157		20	
Power Production Expenses	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	0	0	26	0.11	26	0.48	45	1.31
Electric Expenses	49	27.50	41	.18	208	3.90	163	4.71
Miscellaneous Power Expenses	0	0	34	.15	0	0	0	0
Rents	0	0	0	0	0	0	394	11.38
Maintenance Expenses								
Maintenance Supervision and Engineering	41	23.04	16	.07	20	.38	70	2.04
Maintenance of Structures	3	1.51	2	.01	2	.04	9	.26
Maintenance of Electric Equipment	32	17.98	176	.79	677	12.66	233	6.75
Miscellaneous Power Generation Expenses	0	0	20	.09	0	0	1	.03
Total, Exclusive of Fuel	125	70.03	315	1.40	933	17.46	915	26.48
Fuel	199	111.35	7,066	31.61	2,077	38.86	1,559	45.06
Total Production Expenses	325	181.36	7,472	33.42	3,011	56.32	2,475	71.56
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Oil Burned (1,000 bbls); Cost per Barrel (dollars)	4	22.18	0	0	6	26.27	2	36.89
Btu per Gallon; Cents per Million Btu	137,696	383	0	0	136,912	450	134,999	686
Cost per Barrel, as Delivered F.O.B. Plant (dollars)	0	23.28	0	0	0	NR	0	29.52
Gas Burned (MMcf); Cost per Mcf (dollars)	26.0	3.99	3,536.3	2.00	834.6	2.29	491.5	2.96
Btu per Cubic Foot; Cents per Million Btu	1,026	389	1,019	196	1,042	220	1,026	287
Other Fuel; Cost per Unit (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	29,000		16,114		16,938		15,062	
Plant Hours Connected to Load	8,760		8,760		928		NR	
Total Number of Units (Exclusive of Auxiliary Units)	7		2		4		1	
Type of Operation	Automatic		Attended		Attended		Remote	
Average Number of Employees	NR		17		NR		NR	
Planned Ultimate Capacity	-		-		-		-	
Type of Plant Construction	Full-Outdoor		Conventional		Full-Outdoor		Conventional	
Initial Year of Plant Operation	1966		1967		1973		1974	

Notes: Totals may not equal sum of components because of independent rounding.

NR=Not reported.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 18. Gas-Turbine Electric Plant Cost and Production Expenses, by Plant, 1987 (Continued)

Name of Utility	Jersey Central Power & Light Co				Public Service Electric & Gas Co			
Name of Plant	Riegel		Sayreville		Burlington		Edison	
Region and Power Supply Area Location of Plant	I-05 Milford NJ		I-05 Sayreville NJ		I-05 Burlington NJ		I-05 Edison NJ	
	General Operating Characteristics							
Installed Generating Capacity (MW)	23.6		212.4		520.8		502.2	
Generation (million kWh)	1.0		119.3		57.9		283.2	
Net Peak Demand on Plant - 60 Minutes (MW)	2.5		245.0		536.0		428.0	
Net Continuous Plant Capability								
Winter Capability (MW)	28.0		292.0		645.0		564.0	
Summer Capability (MW)	22.0		212.0		545.0		462.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	2		374		0		6	
Structures and Improvements	6		280		0		3,124	
Equipment	934		26,956		48,916		44,229	
Total	942		27,610		48,916		47,359	
Cost per kW of Installed Capacity (dollars)	40		130		94		94	
	Power Production Expenses							
	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	74	75.01	7	0.06	106	1.84	314	1.11
Electric Expenses	0	0	0	0	221	3.82	347	1.22
Miscellaneous Power Expenses	14	14.38	103	.87	0	0	0	0
Rents	135	137.52	0	0	0	0	0	0
Maintenance Expenses								
Maintenance Supervision and Engineering	11	11.19	57	.47	163	2.81	225	.79
Maintenance of Structures	0	0	22	.18	3	.05	39	.14
Maintenance of Electric Equipment	15	15.68	358	3.00	1,496	25.86	1,358	4.80
Miscellaneous Power Generation Expenses	1	.57	0	0	112	1.94	7	.03
Total, Exclusive of Fuel	250	254.35	547	4.58	2,101	36.32	2,290	8.09
Fuel	52	52.52	4,851	40.65	3,657	63.20	11,553	40.80
Total Production Expenses	302	306.87	5,446	45.68	5,758	99.50	13,843	48.90
	Fuel Used							
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Oil Burned (1,000 bbls); Cost per Barrel (dollars)	0	26.65	1	43.74	164	22.20	13	36.47
Btu per Gallon; Cents per Million Btu	130,154	288	138,115	800	137,631	397	135,418	600
Cost per Barrel, as Delivered F.O.B. Plant (dollars)	0	NR	0	NR	0	22.39	0	73.94
Gas Burned (MMcf); Cost per Mcf (dollars)	16.2	2.81	1,934.2	2.47	0	0	3,978.3	2.78
Btu per Cubic Foot; Cents per Million Btu	1,030	NR	1,031	239	0	0	1,029	300
Other Fuel; Cost per Unit (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
	Plant Characteristics							
Average Btu per kWh Net Generation	18,261		16,812		15,910		15,095	
Plant Hours Connected to Load	47		985		333		1,238	
Total Number of Units (Exclusive of Auxiliary Units)	1		4		4		3	
Type of Operation	Remote		Attended		Automatic		Automatic	
Average Number of Employees	NR		165		NR		NR	
Planned Ultimate Capacity	–		–		–		–	
Type of Plant Construction	Conventional		Conventional		Full-Outdoor		Full-Outdoor	
Initial Year of Plant Operation	1970		1972		1967		1971	

Notes: Totals may not equal sum of components because of independent rounding.

NR=Not reported.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 18. Gas-Turbine Electric Plant Cost and Production Expenses, by Plant, 1987 (Continued)

Name of Utility	Public Service Electric & Gas Co						Consolidated Edison Co of NY	
Name of Plant	Essex		Kearny		Linden		Astoria	
Region and Power Supply Area	I-05		I-05		I-05		I-04	
Location of Plant	Newark NJ		Kearny NJ		Linden NJ		Astoria NY	
General Operating Characteristics								
Installed Generating Capacity (MW)	555.3		517.4		320.1		725.0	
Generation (million kWh)	331.2		76.7		58.2		119.6	
Net Peak Demand on Plant - 60 Minutes (MW)	502.0		37.0		248.0		NR	
Net Continuous Plant Capability								
Winter Capability (MW)	679.0		545.0		360.0		734.0	
Summer Capability (MW)	560.0		422.0		277.0		615.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	0		0		0		0	
Structures and Improvements	1,209		2,732		316		1,236	
Equipment	53,826		41,056		33,345		48,478	
Total	55,035		43,788		33,661		49,714	
Cost per kW of Installed Capacity (dollars)	99		85		105		69	
Power Production Expenses	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	365	1.10	136	1.77	123	2.11	0	0
Electric Expenses	200	.60	204	2.66	65	1.11	965	8.07
Miscellaneous Power Expenses	0	0	0	0	0	0	0	0
Rents	0	0	0	0	0	0	1,622	13.57
Maintenance Expenses								
Maintenance Supervision and Engineering	263	.79	219	2.85	186	3.19	0	0
Maintenance of Structures	5	.01	5	.07	4	.08	0	0
Maintenance of Electric Equipment	1,900	5.74	3,226	42.07	777	13.34	3,201	26.77
Miscellaneous Power Generation Expenses	5	.02	10	.13	9	.16	0	0
Total, Exclusive of Fuel	2,738	8.26	3,800	49.55	1,164	19.99	5,788	48.41
Fuel	12,741	38.47	4,468	58.26	3,532	60.67	6,532	54.63
Total Production Expenses	15,479	46.70	8,268	107.81	4,696	80.70	12,320	103.04
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Oil Burned (1,000 bbls); Cost per Barrel (dollars)	14	25.45	122	26.58	85	27.11	106	25.63
Btu per Gallon; Cents per Million Btu	134,238	500	136,327	500	133,829	500	133,934	455
Cost per Barrel, as Delivered F.O.B. Plant (dollars)	0	NR	0	26.85	0	21.62	0	NR
Gas Burned (MMcf); Cost per Mcf (dollars)	4,609.5	2.68	476.4	2.55	432.4	2.84	1,207.7	3.14
Btu per Cubic Foot; Cents per Million Btu	1,053	300	1,028	200	1,030	300	1,028	305
Other Fuel; Cost per Unit (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	14,971		14,425		15,877		15,404	
Plant Hours Connected to Load	1,380		4 580		634		947	
Total Number of Units (Exclusive of Auxiliary Units)	4		4		6		21	
Type of Operation	Automatic		Automatic		Automatic		Semi-Auto	
Average Number of Employees	NR		NR		209		NR	
Planned Ultimate Capacity	-		-		-		-	
Type of Plant Construction	Full-Outdoor		Conv/Full OD		Conv/Full OD		Conventional	
Initial Year of Plant Operation	1971		1967		1967		1967	

Notes: Totals may not equal sum of components because of independent rounding.

NR = Not reported.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 18. Gas-Turbine Electric Plant Cost and Production Expenses, by Plant, 1987 (Continued)

Name of Utility	Consolidated Edison Co of NY			Long Island Lighting Co
Name of Plant	Gowanus	Narrows	Ravenswood	E F Barrett
Region and Power Supply Area Location of Plant	I-04 Brooklyn NY	I-04 Brooklyn NY	I-04 Long Isl. City NY	I-04 Island Park NY
General Operating Characteristics				
Installed Generating Capacity (MW)	688.0	393.0	482.0	311.4
Generation (million kWh)	78.1	58.5	48.3	133.0
Net Peak Demand on Plant - 60 Minutes (MW)	NR	NR	NR	268.0
Net Continuous Plant Capability				
Winter Capability (MW)	704.0	368.0	515.0	353.0
Summer Capability (MW)	544.0	272.0	413.0	281.0
Historical Plant Cost (thousand dollars)				
Land and Land Rights	1,875	2,165	0	0
Structures and Improvements	7,338	6,270	772	428
Equipment	7,413	8,794	42,871	31,165
Total	16,626	17,229	43,643	31,593
Cost per kW of Installed Capacity (dollars)	24	44	91	101

Power Production Expenses	Gowanus 1,000	Gowanus Mills/kWh	Narrows 1,000	Narrows Mills/kWh	Ravenswood 1,000	Ravenswood Mills/kWh	E F Barrett 1,000	E F Barrett Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	0	0	0	0	0	0	110	0.83
Electric Expenses	881	11.29	485	8.29	497	10.29	0	0
Miscellaneous Power Expenses	0	0	0	0	0	0	342	2.57
Rents	5,649	72.36	2,540	43.46	1,191	24.65	0	0
Maintenance Expenses								
Maintenance Supervision and Engineering	0	0	0	0	0	0	312	2.35
Maintenance of Structures	0	0	0	0	0	0	-836	-6.28
Maintenance of Electric Equipment	1,033	13.23	2,541	43.47	3,554	73.52	2,155	16.20
Miscellaneous Power Generation Expenses	0	0	0	0	0	0	29	.22
Total, Exclusive of Fuel	7,563	96.88	5,566	95.22	5,242	108.46	2,112	15.89
Fuel	5,359	68.64	3,626	62.04	2,993	61.92	5,858	44.04
Total Production Expenses	12,923	165.52	9,193	157.26	8,236	170.39	8,076	60.72

Fuel Used	Gowanus Amount	Gowanus Cost	Narrows Amount	Narrows Cost	Ravenswood Amount	Ravenswood Cost	E F Barrett Amount	E F Barrett Cost
Oil Burned (1,000 bbls); Cost per Barrel (dollars)	223	23.87	53	27.53	63	26.38	14	24.86
Btu per Gallon; Cents per Million Btu	138,505	416	138,120	474	133,398	474	137,200	431
Cost per Barrel, as Delivered F.O.B. Plant (dollars)	0	NR	0	NR	0	NR	0	24.22
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	626.9	3.18	410.9	3.18	2,009.1	2.74
Btu per Cubic Foot; Cents per Million Btu	0	0	1,029	309	1,029	309	1,028	266
Other Fuel; Cost per Unit (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0

Plant Characteristics	Gowanus	Narrows	Ravenswood	E F Barrett
Average Btu per kWh Net Generation	16,409	16,329	16,132	15,824
Plant Hours Connected to Load	517	532	567	1,411
Total Number of Units (Exclusive of Auxiliary Units)	32	16	17	12
Type of Operation	Remote	Remote	Semi-Auto	Remote
Average Number of Employees	174	NR	NR	23
Planned Ultimate Capacity	-	-	-	-
Type of Plant Construction	Barge Mounted	Barge Mounted	Conventional	Outdoor
Initial Year of Plant Operation	1971	1972	1967	1970

Notes: Totals may not equal sum of components because of independent rounding.

NR = Not reported.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 18. Gas-Turbine Electric Plant Cost and Production Expenses, by Plant, 1987 (Continued)

Name of Utility	Long Island Lighting Co		Rochester Gas & Electric Corp		Pennsylvania Electric Co			
Name of Plant	Holtsville		Rochester No 9		Blossburg [1]		Warren	
Region and Power Supply Area Location of Plant	I-04 Holtsville NY		I-03 Rochester NY		I-05 Blossburg PA		I-05 Warren PA	
General Operating Characteristics								
Installed Generating Capacity (MW)	567.0		19.0		23.6		53.1	
Generation (million kWh)	184.8		3.2		4.5		8.8	
Net Peak Demand on Plant - 60 Minutes (MW)	477.0		18.0		27.0		72.0	
Net Continuous Plant Capability								
Winter Capability (MW)	639.0		18.0		26.0		79.0	
Summer Capability (MW)	483.0		15.0		19.0		57.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	185		0		11		0	
Structures and Improvements	1,103		1,542		51		25	
Equipment	53,764		105		1,976		6,656	
Total	55,052		1,646		2,037		6,681	
Cost per kW of Installed Capacity (dollars)	97		87		86		126	
Power Production Expenses	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	107	0.58	0	0	0	0.01	18	2.02
Electric Expenses	0	0	0	0	4	.79	50	5.70
Miscellaneous Power Expenses	321	1.74	0	0	0	0	0	0
Rents	128	.69	0	0	0	0	0	0
Maintenance Expenses								
Maintenance Supervision and Engineering	238	1.29	0	0	0	.03	10	1.12
Maintenance of Structures	86	.47	0	0	5	1.19	51	5.76
Maintenance of Electric Equipment	2,151	11.64	0	0	47	10.46	26	3.01
Miscellaneous Power Generation Expenses	12	.07	0	0	0	0	0	0
Total, Exclusive of Fuel	3,043	16.48	0	0	56	12.48	155	17.61
Fuel	10,328	55.90	166	51.74	226	49.73	561	63.81
Total Production Expenses	13,519	73.17	166	51.74	283	62.21	715	81.40
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Oil Burned (1,000 bbls); Cost per Barrel (dollars)	435	23.74	0	0	0	0	5	27.73
Btu per Gallon; Cents per Million Btu	137,596	396	0	0	0	0	138,800	476
Cost per Barrel, as Delivered F.O.B. Plant (dollars)	0	23.42	0	0	0	0	0	24.38
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	47.1	3.51	64.2	3.52	119.1	3.37
Btu per Cubic Foot; Cents per Million Btu	0	0	1,028	341	1,000	352	1,000	337
Other Fuel; Cost per Unit (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	13,605		15,150		14,146		17,364	
Plant Hours Connected to Load	1,606		218		236		280	
Total Number of Units (Exclusive of Auxiliary Units)	10		1		1		1	
Type of Operation	Remote		Automatic		Automatic		Automatic	
Average Number of Employees	24		-		NR		NR	
Planned Ultimate Capacity	-		-		-		-	
Type of Plant Construction	Outdoor		Conventional		Conventional		Conventional	
Initial Year of Plant Operation	1974		1969		1971		1972	

---

[1] Designed for peak load service.

Notes: Totals may not equal sum of components because of independent rounding.

NR = Not reported.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 18. Gas-Turbine Electric Plant Cost and Production Expenses, by Plant, 1987 (Continued)

Name of Utility	Philadelphia Electric Co				Central Power & Light Co		Houston Lighting & Power Co	
Name of Plant	Croydon		Richmond		La Palma		Greens Bayou	
Region and Power Supply Area Location of Plant	I-05 Bristol TWP PA		I-05 Philadelphia PA		V-38 San Benito TX		V-38 Houston TX	
General Operating Characteristics								
Installed Generating Capacity (MW)	546.0		196.0		65.0		432.0	
Generation (million kWh)	136.6		52.2		9.2		83.7	
Net Peak Demand on Plant - 60 Minutes (MW)	295.0		151.0		58.0		329.0	
Net Continuous Plant Capability								
Winter Capability (MW)	437.0		196.0		55.0		334.0	
Summer Capability (MW)	325.0		144.0		50.0		334.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	404		100		0		0	
Structures and Improvements	3,136		4		392		0	
Equipment	61,877		13,951		6,427		0	
Total	65,417		14,055		6,819		0	
Cost per kW of Installed Capacity (dollars)	120		71		105		0	
Power Production Expenses	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	279	2.04	169	3.24	18	2.00	0	0
Electric Expenses	596	4.37	186	3.57	406	43.92	467	5.58
Miscellaneous Power Expenses	272	1.99	75	1.44	45	4.86	0	0
Rents	0	0	0	0	0	0	0	0
Maintenance Expenses								
Maintenance Supervision and Engineering	209	1.53	70	1.33	1	.10	201	2.41
Maintenance of Structures	246	1.80	69	1.33	0	0	7	.08
Maintenance of Electric Equipment	3,039	22.25	389	7.46	3	.31	3,021	36.10
Miscellaneous Power Generation Expenses	83	.61	5	.10	0	0	0	0
Total, Exclusive of Fuel	4,724	34.59	963	18.47	473	51.19	3,696	44.17
Fuel	6,586	48.23	2,371	45.45	355	38.41	[1] 2,561	30.61
Total Production Expenses	11,310	82.82	3,334	63.92	1,426	154.39	6,257	74.76
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Oil Burned (1,000 bbls); Cost per Barrel (dollars)	311	21.18	117	20.23	0	21.70	14	16.93
Btu per Gallon; Cents per Million Btu	138,404	364	141,436	341	142,702	369	140,449	287
Cost per Barrel, as Delivered F.O.B. Plant (dollars)	0	21.03	0	20.18	0	21.70	0	16.93
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	121.4	2.80	[1] 1,126.3	1.61
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	1,059	264	1,017	156
Other Fuel; Cost per Unit (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	13,240		13,349		13,540		14,829	
Plant Hours Connected to Load	1,350		622		199		1,135	
Total Number of Units (Exclusive of Auxiliary Units)	8		19		1		6	
Type of Operation	Automatic		Automatic		Attended		Attended	
Average Number of Employees	NR		NR		NR		NR	
Planned Ultimate Capacity	-		-		-		-	
Type of Plant Construction	Metal Enclosure		Metal Enclosure		Full-Outdoor		Conventional	
Initial Year of Plant Operation	1974		1970		1975		1976	

[1] Includes pipeline and storage costs.

Notes: Totals may not equal sum of components because of independent rounding.

NR = Not reported.

Source: Federal Energy Regulatory Commission, FERC Form 1, Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 18. Gas-Turbine Electric Plant Cost and Production Expenses, by Plant, 1987 (Continued)

Name of Utility	Houston Lighting & Power Co		Southwestern Public Service Co		Utah Power & Light Co		Virginia Electric & Power Co	
Name of Plant	T H Wharton [1]		Celanese [2]		Little Mountain		Portsmouth	
Region and Power Supply Area Location of Plant	V-38 Houston TX		V-38 Kings Mill TX		VII-41 West of Ogden UT		III-18 Portsmouth VA	
General Operating Characteristics								
Installed Generating Capacity (MW)	1,173.7		13.0		16.0		163.0	
Generation (million kWh)	1,818.6		61.7		-.2		8.4	
Net Peak Demand on Plant - 60 Minutes (MW)	1,064.0		16.0		12.0		133.0	
Net Continuous Plant Capability								
Winter Capability (MW)	923.0		10.0		15.0		189.0	
Summer Capability (MW)	923.0		10.0		15.0		144.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	0		1		1		0	
Structures and Improvements	0		55		190		631	
Equipment	0		788		2,899		17,855	
Total	0		844		3,089		18,486	
Cost per kW of Installed Capacity (dollars)	0		65		193		113	
Power Production Expenses	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	83	0.05	0	0	4	0	127	15.16
Electric Expenses	34	.02	11	.18	67	0	650	77.54
Miscellaneous Power Expenses	0	0	0	0	0	0	0	0
Rents	0	0	0	0	0	0	1,498	178.60
Maintenance Expenses								
Maintenance Supervision and Engineering	259	.14	0	.01	5	0	10	1.23
Maintenance of Structures	1	0	0	0	8	0	156	18.59
Maintenance of Electric Equipment	8,026	4.41	142	2.30	41	0	448	53.47
Miscellaneous Power Generation Expenses	0	0	0	0	0	0	0	0
Total, Exclusive of Fuel	8,403	4.62	153	2.49	125	0	2,889	344.59
Fuel	30,686	16.87	141	2.28	[3] 3	0	454	54.18
Total Production Expenses	39,090	21.49	294	4.77	127	0	3,345	398.77
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Oil Burned (1,000 bbls); Cost per Barrel (dollars)	0	0	0	0	0	0	12	20.34
Btu per Gallon; Cents per Million Btu	0	0	0	0	0	0	139,044	348
Cost per Barrel, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	21.20
Gas Burned (MMcf); Cost per Mcf (dollars)	17,111.6	1.73	397.2	.35	[3] 1.0	3.05	79.9	2.51
Btu per Cubic Foot; Cents per Million Btu	1,018	170	1,000	35	1,085	281	1,955	241
Other Fuel; Cost per Unit (see footnote)	0	0	0	0	0	0	0	0
Thousand Btu per Unit; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	9,590		6,440		-		[4] 18,624	
Plant Hours Connected to Load	6,754		5,463		482		146	
Total Number of Units (Exclusive of Auxiliary Units)	16		1		1		8	
Type of Operation	Attended		Attended		Attended		Remote	
Average Number of Employees	NR		NR		3		NR	
Planned Ultimate Capacity	-		-		-		-	
Type of Plant Construction	Conventional		Conventional		Outdoor		Outdoor	
Initial Year of Plant Operation	1967		1965		1972		1967	

---

[1] Includes steam portion of plant that operates in combined cycle.
[2] Located at a Hoechst-Celanese manufacturing and cogeneration facility. Plant operated on hot nitrogen inert gas, a by-p
[3] No generation in 1987, provides electric energy and process steam to a particular customer.
[4] Composite rate for total fuel consumed.

Notes: Totals may not equal sum of components because of independent rounding.

NR=Not reported.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 18. Gas-Turbine Electric Plant Cost and Production Expenses, by Plant, 1987 (Continued)

Name of Utility	Puget Sound Power & Light Co
Name of Plant	Fredonia
Region and Power Supply Area Location of Plant	VII-43 Mt Vernon WA

General Operating Characteristics	
Installed Generating Capacity (MW)	247.2
Generation (million kWh)	7.0
Net Peak Demand on Plant - 60 Minutes (MW)	NR
Net Continuous Plant Capability	
Winter Capability (MW)	247.3
Summer Capability (MW)	216.0

Historical Plant Cost (thousand dollars)	
Land and Land Rights	1,281
Structures and Improvements	3,425
Equipment	44,576
Total	49,282
Cost per kW of Installed Capacity (dollars)	199

Power Production Expenses	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh	1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	75	10.72						
Electric Expenses	43	6.14						
Miscellaneous Power Expenses	52	7.49						
Rents	0	0						
Maintenance Expenses								
Maintenance Supervision and Engineering	3	.41						
Maintenance of Structures	3	.37						
Maintenance of Electric Equipment	239	34.37						
Miscellaneous Power Generation Expenses	7	1.04						
Total, Exclusive of Fuel	422	60.54						
Fuel	[1] 1,560	224.01						
Total Production Expenses	1,981	284.55						

Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Oil Burned (1,000 bbls); Cost per Barrel (dollars)	4	34.82						
Btu per Gallon; Cents per Million Btu	137,000	605						
Cost per Barrel, as Delivered F.O.B. Plant (dollars)	0	34.82						
Gas Burned (MMcf); Cost per Mcf (dollars)	56.8	1.96						
Btu per Cubic Foot; Cents per Million Btu	1,050	187						
Other Fuel; Cost per Unit (see footnote)	0	0						
Thousand Btu per Unit; Cents per Million Btu	0	0						
Cost per Unit, as Delivered F.O.B. Plant (dollars)	0	0						

Plant Characteristics	
Average Btu per kWh Net Generation	12,368
Plant Hours Connected to Load	NR
Total Number of Units (Exclusive of Auxiliary Units)	-
Type of Operation	Attended
Average Number of Employees	2
Planned Ultimate Capacity	-
Type of Plant Construction	Outdoor
Initial Year of Plant Operation	1984

[1] Fuel burned is used for testing purposes only.

Notes: Totals may not equal sum of components because of independent rounding.

NR = Not reported.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Nuclear Steam-Electric Plants

Diablo Canyon in California began commercial operation during 1985.

Nuclear Steam-Electric Plants

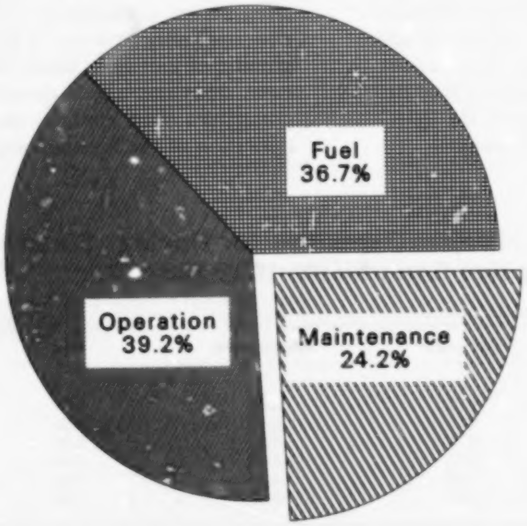
This chapter presents summary statistics for 63 electric utility nuclear steam-electric plants. Four plants which did not operate in 1987: Rancho Seco operated by Sacramento Municipal Utility District, Pilgrim operated by Boston Edison Company, Sequoyah and Brown's Ferry operated by the Tennessee Valley Authority are shown in Table 20 but are not included in the statistical averages. Excluded from this report are the Hanford and the WNP plants which are not required to report on either the Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others" or the Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities." Also excluded from this report are the Braidwood unit, operated by the Commonwealth Edison Company and the Enrico Fermi unit, operated by the Detroit Edison Company. Although they both have received full power licenses, they were not in commercial operation as of year end 1987.

The 63 nuclear plants in aggregate accounted for 446,791 gigawatthours of net generation in 1987. This represents 98 percent of total electric utility nuclear steam-electric generation, or 17 percent of total generation from all sources.

Operating Statistics

Electrical production expenses, in mills per kilowatthour, are weighted by net generation and include operation, maintenance, and fuel. In 1987, the production expenses for the 63 nuclear plants in this selection averaged 20.97 mills per kilowatthour. The fuel cost component averaged 7.69 mills per kilowatthour (37 percent); operation expenses averaged 8.21 mills per kilowatthour; and maintenance expenses averaged 5.07 mills per kilowatthour.

Figure 5. Components of Nuclear Steam-Electric Plant Weighted Average Production Expenses, 1987



Source: Federal Energy Regulatory Commission, FERC Form 1, 'Annual Report of Major Electric Utilities, Licensees and Others,' and Energy Information Administration, Form EIA-412, 'Annual Report of Public Electric Utilities.'

Average production expenses per kilowatthour for nuclear steam-electric plants increased by 1.51 mills in 1987 compared to 1986. The elevation of costs were due to increases in operation expenses of 0.92 mills per kilowatthour, maintenance expenses of 0.37 mills per kilowatthour and, fuel expenses of 0.21 mills per kilowatthour.

These numbers represent an escalation in production expenses. Factors that may have influenced the escalation in operation and maintenance costs include: a commitment by industry to improve the performance of nuclear plants, increased plant and operational procedure modifications due to regulatory activity by the Nuclear Regulatory Commission (NRC), and the aging of nuclear plants. Continued escalation in operation and maintenance costs would erode the small operating cost advantage that nuclear plants now have. While many proponents of nuclear power are now assuming operating lives of over 40 years for nuclear plants, continued escalation of operating costs may make it economical to close some of the older plants; thus the assumption of a 40-year operating life may be optimistic. A more detailed discussion of operating costs is contained in the Energy Information Administration publication *An Analysis of Nuclear Power Plant Operating Costs,* DOE/EIA-0511, published in March 1988.

Historical Plant Cost and Operating Statistics for New Plants

This report includes five nuclear-powered plants that began commercial operation in 1987. These five plants, Harris (Carolina Power & Light), Perry (Cleveland Electric Illuminating Co), Vogtle (Georgia Power Co), Clinton (Illinois Power Co), and Hope Creek (Public Service Electric and Gas), contributed slightly to the increase in production expenses, by having a higher average weighted (by net generation) production expense of 24.07 mills per kilowatthour than the 20.97 mills per kilowatthour for the 63 nuclear plants.

Plant Cost and Operating Statistics for New Plants

The nuclear plants which began commercial operation during 1987 had a total initial investment cost of $20.6 billion or an average $3,706 per kilowatt of installed generating capacity. Of the production expenses of 24.07 mills per kilowatthour, fuel averaged approximately 38 percent of the production expenses or 9.04 mills per kilowatthour. The weighted average heat rate was 11,079 Btu per kilowatthour.

During the first full year of operation, the three plants that began commercial operation during 1986 (Palo Verde, operated by Arizona Public Service, River Bend, operated by Gulf States Utilities, and Limerick, operated by Philadelphia Electric Company) had production expenses of 35.05 mills per kilowatthour in 1987.

Operating Life of a Nuclear Plant

The oldest operating nuclear plant in this report is the Yankee Atomic Electric Company's Nuclear Power Station in Massachusetts which started operation in 1960. Unit 1 (retired in 1985) of the Dresden plant operated by the Commonwealth Edison Company also started commercial operation in 1960. Dresden's Units 2 and 3 became operational in 1972 and 1973, respectively.

Originally, nuclear plants were licensed by the Nuclear Regulatory Commission (NRC) for 40 years from the date the utility company received the construction permit. However, the construction period has now increased to about 12 years, limiting the licensed operating period substantially. In 1982 the NRC redefined new operating licenses to become effective at the beginning of unit operation. This change in status, however, does not affect already licensed plants; utility companies must apply to the NRC and receive a redefinition of the licensed period.

Table 19. Average Annual Production Expenses for Nuclear Steam-Electric Plants, Weighted by Net Generation, 1982-1987

(Mills per Kilowatthour)

Year	Operation	Maintenance	Fuel	Total
1982	4.77	3.34	5.95	14.06
1983	5.51	3.99	6.36	15.86
1984	6.36	4.66	7.29	18.31
1985	6.52	3.95	7.40	17.86
1986	7.29	4.70	7.48	19.46
1987	8.21	5.07	7.69	[1] 20.97

[1] Total production expenses for all nuclear plants (under a full power license) were 23.7 mills per kilowatthour excluding Hanford and WNP2.

Notes: •Totals may not equal sum of components because of independent rounding. •Weighted average production expenses for 1982-1984 have been revised to include only those plants included in the selection that generated power in the indicated year.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 20. Nuclear Steam-Electric Plant Costs and Production Expenses by Plant, 1987

Name of Utility	Alabama Power Co		Tennessee Valley Authority		Arizona Public Service Co		Arkansas Power & Light Co	
Name of Plant	Joseph M Farley		Browns Ferry [1]		Palo Verde		Arkansas Nuclear One[2]	
Region and Power Supply Area	III-22		III-20		VIII-48		V-25	
Location of Plant	Columbia AL		Athens AL		Wintersburg AZ		Russellville AR	
General Operating Characteristics								
Installed Generating Capacity (MW)	1,776.8		3,456.0		2,719.0		1,845.0	
Generation (million kWh)	11,347.5		-100.4		13,458.3		11,369.4	
Plant Factor Based on Nameplate Rating (percent)	73		-		57		70	
Net Peak Demand on Plant - 60 Minutes (MW)	1,682.0		NR		2,587.0		1,756.0	
Net Continuous Plant Capability								
Winter Capability (MW)	1,654.6		3,199.8		2,540.0		1,694.0	
Summer Capability (MW)	1,654.6		3,199.8		2,540.0		1,694.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	1,454		941		0		1,050	
Structures and Improvements	444,434		269,424		0		259,638	
Equipment	1,319,966		905,164		0		903,195	
Total	1,765,854		1,175,528		4,674,167		1,163,884	
Cost per kW of Installed Capacity (dollars)	994		340		1,719		631	
Power Production Expenses								
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	21,473	1.89	78,167	0	23,164	1.72	18,554	1.63
Coolants and Water	1,877	.17	395	0	8,079	.60	2,225	.20
Steam Expenses	17,841	1.57	15,217	0	5,226	.39	759	.07
Steam from Other Sources	0	0	0	0	0	0	0	0
Steam Transferred (CR)	0	0	0	0	0	0	0	0
Electric Expenses	3,539	.31	4,361	0	2,539	.19	12	0
Miscellaneous Steam Power Expenses	20,497	1.81	25,755	0	53,362	3.96	46,075	4.05
Rents	208	.02	0	0	185,453	13.78	4,222	.37
Maintenance Expenses								
Maintenance Supervision and Engineering	7,864	.69	25,897	0	29,561	2.20	949	.08
Maintenance of Structures	2,537	.22	6,040	0	9,419	.70	2,512	.22
Maintenance of Boiler Plant	32,721	2.88	11,533	0	15,225	1.13	6,742	.59
Maintenance of Electric Plant	9,273	.82	5,346	0	6,760	.50	1,733	.15
Maintenance of Miscellaneous Steam Plant	4,315	.38	5,950	0	10,824	.80	40,000	3.52
Total, Exclusive of Fuel	122,145	10.76	178,661	0	349,612	25.97	123,783	10.88
Fuel	84,074	7.41	9,201	0	118,435	8.80	91,562	8.05
Total Production Expenses	206,220	18.17	187,862	0	468,046	34.80	215,346	18.94
Fuel Used								
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	0	0	21.4	46.31
Btu per Gallon; Cents per Million Btu	0	0	0	0	0	0	136,695	806
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	46.31
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Uranium (grams); Cost per Gram (dollars)	1,997,000	42.10	0	0	2,100,600	NR	1,101,126	NR
Thousand Btu per Gram; Cents per Million Btu	63,410	66	0	0	66,661	NR	NR	NR
Cost per Gram, as Delivered F.O.B. Plant (dollars)	0	NR	0	0	0	NR	0	NR
Plant Characteristics								
Average Btu per kWh Net Generation	11,165		-		10,408		10,837	
Plant Hours Connected to Load	8,536		NR		7,500		7,722	
Total Number of Units (Exclusive of Auxiliary Units)	2		3		2		2	
Condensing Water Supply	Chattahoochee River		Tennessee River		Wheeler Reservoir		Dardanelle River	
Average Number of Employees	865		4,041		1,674		798	
Type of Plant Construction	Conv-PWR		Conv-BWR		Conv-PWR		Conv-PWR	
Initial Year of Plant Operation	1977		1974		1986		1974	

---

[1] Did not operate in 1987.

[2] Includes two 2.7 MW diesel units used for emergency start-up and shut-down power only.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 20. Nuclear Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Pacific Gas & Electric Co		Sacramento Municipal Util Dist		Southern California Edison Co		Public Service Co of Colorado	
Name of Plant	Diablo Canyon		Rancho Seco		San Onofre		Fort St. Vrain	
Region and Power Supply Area	VIII-46		VIII-46		VIII-47		VI-32	
Location of Plant	San Luis Obispo CA		Clay CA		San Clemente CA		Platteville CO	
General Operating Characteristics								
Installed Generating Capacity (MW)	2,301.0		926.5		2,710.0		336.0	
Generation (million kWh)	13,999.3		NR		16,503.7		188.0	
Plant Factor Based on Nameplate Rating (percent)	69		-		70		6	
Net Peak Demand on Plant - 60 Minutes (MW)	2,288.0		NR		NR		NR	
Net Continuous Plant Capability								
Winter Capability (MW)	2,152.0		903.0		2,586.0		217.0	
Summer Capability (MW)	2,152.0		873.0		2,586.0		217.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	16,175		874		399		4,803	
Structures and Improvements	863,016		189,007		1,313,465		16,882	
Equipment	4,779,075		450,901		4,375,481		34,023	
Total	5,658,266		[1] 640,782		5,689,346		55,708	
Cost per kW of Installed Capacity (dollars)	2,459		690		2,099		166	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	43,943	3.14	45,222	0	42,526	2.58	4,189	22.28
Coolants and Water	6,798	.49	843	0	5,899	.36	838	4.46
Steam Expenses	10,802	.77	4,343	0	15,348	.93	2,756	14.66
Steam from Other Sources	0	0	0	0	0	0	0	0
Steam Transferred (CR)	0	0	0	0	0	0	0	0
Electric Expenses	2,363	.17	592	0	2,144	.13	1,456	7.74
Miscellaneous Steam Power Expenses	40,873	2.92	20,294	0	53,790	3.26	5,205	27.69
Rents	0	0	0	0	736	.04	409	2.17
Maintenance Expenses								
Maintenance Supervision and Engineering	3,672	.26	33,563	0	28,412	1.72	11,351	60.39
Maintenance of Structures	4,855	.35	4,226	0	13,499	.82	81	.43
Maintenance of Boiler Plant	15,903	1.14	4,308	0	35,971	2.18	2,837	15.09
Maintenance of Electric Plant	7,067	.50	2,102	0	14,093	.85	1,078	5.74
Maintenance of Miscellaneous Steam Plant	10,289	.73	8,504	0	15,768	.96	-2,911	-15.49
Total, Exclusive of Fuel	146,565	10.47	123,997	0	228,186	13.83	27,289	145.16
Fuel	124,173	8.87	408	0	199,688	12.10	0	0
Total Production Expenses	270,737	19.34	124,405	0	427,874	25.93	27,288	145.00
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound, Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	0	0	0	0
Btu per Gallon; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Uranium (grams); Cost per Gram (dollars)	[2] 0	0	0	0	3,173,500	61.50	0	0
Thousand Btu per Gram; Cents per Million Btu	0	0	0	0	52,405	117	0	0
Cost per Gram, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	NR	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	-		-		10,665		-	
Plant Hours Connected to Load	8,548		NR		8,760		200	
Total Number of Units (Exclusive of Auxiliary Units)	2		1		3		1	
Condensing Water Supply	Pacific Ocean		Folsom Canal		Pacific Ocean		St. Vrain Creek	
Average Number of Employees	1,075		964		2,576		297	
Type of Plant Construction	Conv-PWR		Conv-PWR		Conv-PWR		HTGR	
Initial Year of Plant Operation	1985		1974		1967		1979	

[1] Excludes $208 million in CWIP.

[2] Reported 1,837,888 megawatt days thermal.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 20. Nuclear Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Connecticut Yankee Atomic Pwr Co		Northeast Nuclear Energy Co		Florida Power Corp		Florida Power & Light Co	
Name of Plant	Haddam		Millstone		Crystal River		St. Lucie	
Region and Power Supply Area	I-02		I-02		III 24		III-24	
Location of Plant	Haddam Neck CT		Waterford CT		Red Level FL		Ft. Pierce FL	
General Operating Characteristics								
Installed Generating Capacity (MW)	600.0		2,824.4		890.4		1,700.0	
Generation (million kWh)	2,527.2		18,013.1		3,620.8		11,166.7	
Plant Factor Based on Nameplate Rating (percent)	48		73		46		75	
Net Peak Demand on Plant - 60 Minutes (MW)	565.0		2,685.0		NR		1,749.0	
Net Continuous Plant Capability								
Winter Capability (MW)	582.0		2,677.2		764.0		1,706.0	
Summer Capability (MW)	543.0		2,653.2		737.0		1,678.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	564		3,025		57		2,742	
Structures and Improvements	59,266		1,734,195		167,644		708,850	
Equipment	215,827		2,824,319		380,975		1,582,482	
Total	275,657		4,561,540		548,675		2,294,075	
Cost per kW of Installed Capacity (dollars)	459		1,615		616		1,350	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	16,168	6.40	37,548	2.08	21,082	5.82	2,020	0.18
Coolants and Water	1,695	.67	6,872	.38	0	0	686	.06
Steam Expenses	4,831	1.91	17,784	.99	71	.02	6,414	.57
Steam from Other Sources	0	0	0	0	218	.06	0	0
Steam Transferred (CR)	0	0	0	0	0	0	0	0
Electric Expenses	1,743	.69	6,824	.38	1	0	3,502	.31
Miscellaneous Steam Power Expenses	23,188	9.18	56,995	3.16	18,188	5.02	36,764	3.29
Rents	1,549	.61	6,862	.38	0	0	38	0
Maintenance Expenses								
Maintenance Supervision and Engineering	2,688	1.06	10,223	.57	24,469	6.76	6,408	.57
Maintenance of Structures	2,714	1.07	8,057	.45	1,745	.48	2,863	.26
Maintenance of Boiler Plant	25,544	10.11	42,341	2.35	9,227	2.55	23,074	2.07
Maintenance of Electric Plant	7,048	2.79	12,088	.67	2,038	.56	8,126	.73
Maintenance of Miscellaneous Steam Plant	1,503	.59	3,464	.19	2,343	.65	2,682	.24
Total, Exclusive of Fuel	88,671	35.08	209,058	11.60	79,382	21.92	92,577	8.28
Fuel	26,612	10.53	176,380	9.79	23,525	6.50	87,342	7.82
Total Production Expenses	115,284	45.62	385,440	21.40	102,907	28.42	179,921	16.11
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	1.2	20.97	0	0
Btu per Gallon; Cents per Million Btu	0	0	0	0	124,215	402	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	24.32	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Uranium (grams); Cost per Gram (dollars)	463,014	NR	3,078,863	NR	[1] 0	0	[2] 0	0
Thousand Btu per Gram; Cents per Million Btu	61,830	0	62,910	NR	0	0	0	0
Cost per Gram, as Delivered F.O.B. Plant (dollars)	0	NR	0	NR	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	11,329		10,388		–		–	
Plant Hours Connected to Load	4,700		7,792		5,849		8,459	
Total Number of Units (Exclusive of Auxiliary Units)	1		3		1		1	
Condensing Water Supply	Connecticut River		Long Isl. Sound		Gulf of Mexico		Atlantic Ocean	
Average Number of Employees	252		233		319		682	
Type of Plant Construction	Conv-PWR		Conv-BWR		Conv-PWR		Conv-PWR	
Initial Year of Plant Operation	1967		1970		1977		1976	

[1] Reported 34,201,102 million Btu.

[2] Reported 116,915 million Btu.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 20. Nuclear Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	**Florida Power & Light Co**		**Georgia Power Co**				**Commonwealth Edison Co**	
Name of Plant	Turkey Point		Edwin I Hatch [1]		Vogtle [1]		Byron	
Region and Power Supply Area	III-24		III-23		III-23		IV-14	
Location of Plant	Florida City FL		Baxter GA		Burke GA		Ogle IL	
	General Operating Characteristics							
Installed Generating Capacity (MW)	1,519.9		1,700.0		1,215.0		2,450.0	
Generation (million kWh)	3,485.9		10,632.3		3,932.5		9,990.4	
Plant Factor Based on Nameplate Rating (percent)	26		73		37		47	
Net Peak Demand on Plant - 60 Minutes (MW)	1,413.0		1,588.0		1,168.0		2,207.0	
Net Continuous Plant Capability								
Winter Capability (MW)	1,376.0		1,523.8		1,079.0		2,240.0	
Summer Capability (MW)	1,332.0		1,523.8		1,079.0		2,240.0	
	Historical Plant Cost (thousand dollars)							
Land and Land Rights	8,321		1,368		7,151		3,418	
Structures and Improvements	172,754		323,836		1,264,016		884,942	
Equipment	639,792		1,163,912		2,294,668		3,561,059	
Total	820,867		1,489,116		3,565,836		4,449,419	
Cost per kW of Installed Capacity (dollars)	540		876		2,935		1,816	
	Power Production Expenses							
	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	11,956	3.43	18,637	1.72	17,145	4.36	20,646	2.07
Coolants and Water	1,349	.39	711	.07	640	.16	1,775	.18
Steam Expenses	2,117	.61	20,198	1.86	7,228	1.84	9,594	.96
Steam from Other Sources	0	0	0	0	0	0	0	0
Steam Transferred (CR)	0	0	0	0	0	0	0	0
Electric Expenses	821	.24	74	.01	151	.04	3,039	.30
Miscellaneous Steam Power Expenses	36,434	10.45	16,664	1.54	18,845	4.79	33,406	3.34
Rents	78	.02	4	0	27	.01	0	0
Maintenance Expenses								
Maintenance Supervision and Engineering	17,729	5.09	24,249	2.24	10,968	2.79	3,413	.34
Maintenance of Structures	4,886	1.40	4,178	.39	2,309	.59	1,143	.11
Maintenance of Boiler Plant	37,526	10.77	29,557	2.73	5,001	1.27	7,096	.71
Maintenance of Electric Plant	6,786	1.95	4,499	.42	2,708	.69	3,617	.36
Maintenance of Miscellaneous Steam Plant	3,789	1.09	4,825	.45	2,647	.67	4,405	.44
Total, Exclusive of Fuel	123,473	35.44	123,596	11.43	67,667	17.21	88,134	8.81
Fuel	24,034	6.89	104,217	9.62	45,417	11.55	70,499	7.06
Total Production Expenses	147,508	42.32	227,812	21.03	113,084	28.76	158,634	15.87
	Fuel Used							
	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	0	0	0	0
Btu per Gallon; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Uranium (grams); Cost per Gram (dollars)	[2] 0	0	NR	NR	NR	NR	1,192,526	NR
Thousand Btu per Gram; Cents per Million Btu	0	0	NR	NR	NR	NR	92,110	64
Cost per Gram, as Delivered F.O.B. Plant (dollars)	0	0	0	NR	0	NR	0	NR
	Plant Characteristics							
Average Btu per kWh Net Generation	-		NR		NR		10,997	
Plant Hours Connected to Load	4,442		8,760		3,921		8,398	
Total Number of Units (Exclusive of Auxiliary Units)	2		2		1		2	
Condensing Water Supply	Atlantic Ocean		Altamaha River		Savannah		Rock River	
Average Number of Employees	668		1,225		1,638		681	
Type of Plant Construction	Conv-PWR		Conv-BWR		Conv-PWR		Conv-PWR	
Initial Year of Plant Operation	1972		1974		1987		1985	

[1] 100% fuel data not available.

[2] Reported 39,663 million Btu.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 20. Nuclear Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Commonwealth Edison Co			
Name of Plant	Dresden	La Salle	Quad Cities	Zion
Region and Power Supply Area Location of Plant	IV-14 Morris IL	IV-14 Seneca IL	IV-14 Cordova IL	IV-14 Zion IL
General Operating Characteristics				
Installed Generating Capacity (MW)	1,657.0	2,341.0	1,656.6	2,136.0
Generation (million kWh)	7,733.3	8,618.5	9,414.4	11,165.4
Plant Factor Based on Nameplate Rating (percent)	53	42	65	58
Net Peak Demand on Plant - 60 Minutes (MW)	1,549.0	2,076.0	1,591.0	2,115.0
Net Continuous Plant Capability				
Winter Capability (MW)	1,588.0	2,156.0	1,578.0	2,080.0
Summer Capability (MW)	1,545.0	2,096.0	1,538.0	2,080.0
Historical Plant Cost (thousand dollars)				
Land and Land Rights	4,620	5,378	1,520	1,313
Structures and Improvements	179,235	485,194	105,078	110,821
Equipment	449,513	2,005,224	399,406	670,363
Total	633,368	2,495,795	506,004	782,497
Cost per kW of Installed Capacity (dollars)	382	1,066	305	356

Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	17,370	2.25	20,594	2.39	17,590	1.87	19,575	1.75
Coolants and Water	3,450	.45	2,739	.32	2,337	.25	2,111	.19
Steam Expenses	16,250	2.10	11,428	1.33	7,829	.83	8,603	.77
Steam from Other Sources	0	0	0	0	0	0	0	0
Steam Transferred (CR)	0	0	0	0	0	0	0	0
Electric Expenses	2,615	.34	2,570	.30	925	.10	2,286	.20
Miscellaneous Steam Power Expenses	30,056	3.89	28,265	3.28	25,934	2.75	27,757	2.49
Rents	0	0	0	0	0	0	0	0
Maintenance Expenses								
Maintenance Supervision and Engineering	2,896	.37	7,719	.90	2,518	.27	3,021	.27
Maintenance of Structures	3,988	.52	4,321	.50	2,057	.22	1,159	.10
Maintenance of Boiler Plant	10,678	1.38	15,783	1.83	10,009	1.06	12,763	1.14
Maintenance of Electric Plant	2,680	.35	3,291	.38	2,965	.31	2,939	.26
Maintenance of Miscellaneous Steam Plant	2,760	.36	4,744	.55	2,577	.27	3,529	.32
Total, Exclusive of Fuel	92,743	12.01	101,454	11.78	74,741	7.93	83,743	7.49
Fuel	54,774	7.08	54,783	6.36	65,375	6.94	67,844	6.08
Total Production Expenses	147,517	19.08	156,238	18.13	140,117	14.88	151,586	13.58

Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	0	0	0	0
Btu per Gallon; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Uranium (grams); Cost per Gram (dollars)	764,060	NR	791,857	NR	817,600	NR	1,047,473	NR
Thousand Btu per Gram; Cents per Million Btu	114,690	62	117,920	58	126,188	61	113,460	57
Cost per Gram, as Delivered F.O.B. Plant (dollars)	0	NR	0	NR	0	NR	0	NR

Plant Characteristics	Dresden	La Salle	Quad Cities	Zion
Average Btu per kWh Net Generation	11,332	10,836	11,015	10,464
Plant Hours Connected to Load	7,699	7,676	8,373	8,348
Total Number of Units (Exclusive of Auxiliary Units)	3	2	2	2
Condensing Water Supply	Illinois River	Illinois River	Mississippi Rv	Lake Michigan
Average Number of Employees	699	637	511	560
Type of Plant Construction	Conv-BWR	Conv-BWR	Conv-BWR	Conv-PWR
Initial Year of Plant Operation	1960	1982	1972	1973

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 20. Nuclear Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Illinois Power Co		Iowa Electric Light & Power Co		Kansas Gas & Electric Co		Gulf States Utilities Co	
Name of Plant	Clinton [1]		Duane Arnold		Wolf Creek		River Bend	
Region and Power Supply Area	IV-40		IV-17		V-34		V-35	
Location of Plant	De Witt IL		Palo IA		Coffey KS		St. Francisville LA	
General Operating Characteristics								
Installed Generating Capacity (MW)	985.0		597.0		1,235.8		1,036.0	
Generation (million kWh)	1,823.0		2,523.3		6,471.2		4,898.2	
Plant Factor Based on Nameplate Rating (percent)	21		48		60		54	
Net Peak Demand on Plant - 60 Minutes (MW)	949.0		554.0		1,151.0		947.0	
Net Continuous Plant Capability								
Winter Capability (MW)	944.0		540.0		1,151.0		930.0	
Summer Capability (MW)	930.0		500.0		1,128.0		919.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	13,534		1,969		7,345		12,284	
Structures and Improvements	1,308,867		125,078		662,125		1,905,757	
Equipment	3,054,023		393,337		2,203,760		2,495,894	
Total	4,376,424		520,384		2,873,231		4,413,935	
Cost per kW of Installed Capacity (dollars)	4,443		871		2,325		4,261	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	9,828	5.39	6,650	2.64	4,360	0.67	23,692	4.84
Coolants and Water	820	.45	1,633	.65	619	.10	1,848	.38
Steam Expenses	13,390	7.34	13,873	5.50	6,670	1.03	6,827	1.39
Steam from Other Sources	0	0	0	0	0	0	0	0
Steam Transferred (CR)	0	0	0	0	0	0	0	0
Electric Expenses	373	.20	59	.02	981	.15	1,303	.27
Miscellaneous Steam Power Expenses	20,944	11.49	12,319	4.88	29,243	4.52	26,969	5.51
Rents	72	.04	324	.13	0	0	1,450	.30
Maintenance Expenses								
Maintenance Supervision and Engineering	8,344	4.58	5,591	2.22	11,276	1.74	18,003	3.68
Maintenance of Structures	1.553	.85	945	.37	1,947	.30	8,667	1.77
Maintenance of Boiler Plant	7,608	4.17	6,573	2.61	9,211	1.42	18,183	3.71
Maintenance of Electric Plant	1,333	.73	2,363	.94	2,885	.45	7,153	1.46
Maintenance of Miscellaneous Steam Plant	893	.49	1,463	.58	1,896	.29	6,796	1.39
Total, Exclusive of Fuel	65,156	35.73	51,793	20.54	69,088	10.67	120,891	24.70
Fuel	24,228	13.29	19,343	7.67	35,708	5.52	62,932	12.85
Total Production Expenses	89,384	49.03	71,135	28.19	104,796	16.00	183,822	37.53
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	0	0	0	0
Btu per Gallon; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Uranium (grams); Cost per Gram (dollars)	NR	NR	348,037	55.58	539,085	NR	[2] 0	0
Thousand Btu per Gram; Cents per Million Btu	NR	NR	77,990	71	124,600	53	0	0
Cost per Gram, as Delivered F.O.B. Plant (dollars)	0	NR	0	NR	0	NR	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	NR		10,757		10,380		–	
Plant Hours Connected to Load	3,507		5,515		6,013		5,838	
Total Number of Units (Exclusive of Auxiliary Units)	1		1		1		1	
Condensing Water Supply	Clinton Lake		River Water CT		Wolf Crk Cooling Lk		Mississippi	
Average Number of Employees	1,115		304		1,191		652	
Type of Plant Construction	Conv-BWR		Conv-BWR		Conv-PWR		Conv-BWR	
Initial Year of Plant Operation	1987		1974		1985		1986	

[1] 100% fuel data not available.

[2] Reported 15,461,424 megawatt days thermal.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 20. Nuclear Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Louisiana Power & Light Co		Maine Yankee Atomic Power Co		Baltimore Gas & Electric Co		Boston Edison Co	
Name of Plant	Waterford 3		Maine Yankee		Calvert Cliffs		Pilgrim [1]	
Region and Power Supply Area	V-25		I-01		I-05		I-02	
Location of Plant	St Charles LA		Wicasset ME		Lusby MD		Plymouth MA	
General Operating Characteristics								
Installed Generating Capacity (MW)	1,200.0		864.0		1,828.7		678.0	
Generation (million kWh)	7,425.7		4,042.9		10,069.6		NR	
Plant Factor Based on Nameplate Rating (percent)	71		53		63		-	
Net Peak Demand on Plant - 60 Minutes (MW)	1,131.0		853.0		1,757.0		NR	
Net Continuous Plant Capability								
Winter Capability (MW)	1,075.0		855.0		1,720.0		670.0	
Summer Capability (MW)	1,075.0		845.0		1,650.0		666.6	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	896		994		4,424		6,722	
Structures and Improvements	756,457		66,672		226,560		148,962	
Equipment	1,789,344		258,629		780,405		553,895	
Total	2,546,699		326,294		1,011,389		709,579	
Cost per kW of Installed Capacity (dollars)	2,122		378		553		1,047	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	18,356	2.47	6,390	1.50	11,668	1.16	5,691	0
Coolants and Water	2,144	.29	547	.14	143	.01	1,533	0
Steam Expenses	9,064	1.22	4,742	1.17	9,269	.92	17,712	0
Steam from Other Sources	0	0	0	0	0	0	0	0
Steam Transferred (CR)	0	0	0	0	0	0	0	0
Electric Expenses	1,984	.27	452	.11	1,180	.12	184	0
Miscellaneous Steam Power Expenses	15,599	2.10	12,347	3.05	28,513	2.83	32,306	0
Rents	0	0	642	.16	-1	0	990	0
Maintenance Expenses								
Maintenance Supervision and Engineering	22,303	3.00	435	.11	3,716	.37	1,093	0
Maintenance of Structures	2,016	.27	333	.08	985	.10	6,504	0
Maintenance of Boiler Plant	8,079	1.09	10,305	2.55	8,761	.87	28,080	0
Maintenance of Electric Plant	4,527	.61	10,561	2.61	4,770	.47	23,341	0
Maintenance of Miscellaneous Steam Plant	2,194	.30	1,570	.39	8,266	.82	-4,951	0
Total, Exclusive of Fuel	86,266	11.62	48,324	11.95	77,290	7.67	112,483	0
Fuel	65,521	8.82	25,935	6.42	53,202	5.28	[2] 5,376	0
Total Production Expenses	151,787	20.00	74,259	18.40	130,492	12.96	117,858	0
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	7.7	21.23	0	0
Btu per Gallon; Cents per Million Btu	0	0	0	0	139,000	364	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	22.24	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Uranium (grams); Cost per Gram (dollars)	[3] 0	0	567,436	45.70	1,247,757	44.98	0	0
Thousand Btu per Gram; Cents per Million Btu	0	0	78,792	58	86,230	52	0	0
Cost per Gram, as Delivered F.O.B. Plant (dollars)	0	0	0	NR	0	NR	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	-		11,058		10,701		-	
Plant Hours Connected to Load	7,088		5,415		7,352		NR	
Total Number of Units (Exclusive of Auxiliary Units)	1		1		2		1	
Condensing Water Supply	Mississippi		Back River		Chesapeake Bay		Cape Cod Bay	
Average Number of Employees	481		343		824		430	
Type of Plant Construction	Conv-PWR		Conv-PWR		Conv-PWR		Conv-BWR	
Initial Year of Plant Operation	1985		1967		1975		1972	

[1] Did not operate in 1987.

[2] Amortization of pre-4/83 spent nuclear fuel disposal costs.

[3] Reported 78,830,774 megawatt days thermal.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 20. Nuclear Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Yankee Atomic Electric Co		Consumers Power Co				Indiana & Michigan Electric Co	
Name of Plant	Nuc Pwr Sta [1]		Big Rock Point		Palisades		Donald C Cook	
Region and Power Supply Area	I-02		II-11		II-11		II-11	
Location of Plant	Rowe MA		Charlevoix MI		Covert TWP MI		Bridgman MI	
General Operating Characteristics								
Installed Generating Capacity (MW)	185.0		75.0		811.7		2,285.0	
Generation (million kWh)	1,142.0		373.6		2,581.7		10,060.3	
Plant Factor Based on Nameplate Rating (percent)	70		57		36		50	
Net Peak Demand on Plant - 60 Minutes (MW)	173.7		67.6		814.0		1,866.0	
Net Continuous Plant Capability								
Winter Capability (MW)	167.0		69.0		777.0		2,130.0	
Summer Capability (MW)	167.0		69.0		734.0		2,130.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	137		133		2,656		1,813	
Structures and Improvements	15,376		10,009		133,173		256,269	
Equipment	66,322		39,704		284,276		976,697	
Total	81,835		49,846		420,106		1,234,779	
Cost per kW of Installed Capacity (dollars)	442		665		518		540	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	12,932	11.32	1,276	3.42	10,240	3.97	19,820	1.97
Coolants and Water	233	.20	770	2.06	2,130	.83	1,894	.19
Steam Expenses	5,857	5.13	1,875	5.02	4,814	1.86	20,682	2.06
Steam from Other Sources	0	0	0	0	0	0	0	0
Steam Transferred (CR)	0	0	0	0	0	0	0	0
Electric Expenses	1,224	1.07	517	1.38	932	.36	1,447	.14
Miscellaneous Steam Power Expenses	7,804	6.83	5,140	13.76	20,618	7.99	34,006	3.38
Rents	0	0	156	.42	1,177	.46	35	0
Maintenance Expenses								
Maintenance Supervision and Engineering	660	.58	476	1.27	5,486	2.12	10,477	1.04
Maintenance of Structures	50	.04	391	1.05	3,311	1.28	5,601	.56
Maintenance of Boiler Plant	980	.86	2,418	6.47	9,274	3.59	17,994	1.79
Maintenance of Electric Plant	3,153	2.76	400	1.07	3,972	1.54	3,125	.31
Maintenance of Miscellaneous Steam Plant	107	.09	583	1.56	1,655	.64	2,463	.24
Total, Exclusive of Fuel	33,000	28.88	14,002	37.48	63,609	24.64	117,544	11.68
Fuel	11,353	9.94	3,402	9.11	20,220	7.83	84,171	8.37
Total Production Expenses	44,353	38.80	17,404	46.60	83,828	32.50	201,717	20.05
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	0	0	13.5	22.05
Btu per Gallon; Cents per Million Btu	0	0	0	0	0	0	138,200	380
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	23.80
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Uranium (grams); Cost per Gram (dollars)	229,432	49.48	53,534	NR	383,900	NR	1,711,060	49.02
Thousand Btu per Gram; Cents per Million Btu	59,970	83	NR	81	NR	67	65,641	74
Cost per Gram, as Delivered F.O.B. Plant (dollars)	0	NR	0	NR	0	NR	0	NR
Plant Characteristics								
Average Btu per kWh Net Generation	12,115		11,241		11,666		11,172	
Plant Hours Connected to Load	7,101		6,134		3,984		7,231	
Total Number of Units (Exclusive of Auxiliary Units)	1		1		1		2	
Condensing Water Supply	Deerfield River		Lake Michigan		Lake Michigan		Lake Michigan	
Average Number of Employees	166		134		455		612	
Type of Plant Construction	Conv-PWR		Conv-BWR		Conv-PWR		Conv-PWR	
Initial Year of Plant Operation	1960		1962		1970		1975	

[1] Shut down for refueling from May - July 1987.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 20. Nuclear Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Northern States Power Co				Mississippi Power & Light Co		Union Electric Co	
Name of Plant	Monticello		Prairie Island		Grand Gulf		Callaway	
Region and Power Supply Area	IV-16		IV-16		V-25		IV-15	
Location of Plant	Monticello MN		Red Wing MN		Clairborne MS		Callaway MO	
General Operating Characteristics								
Installed Generating Capacity (MW)	568.8		1,186.2		1,372.5		1,235.8	
Generation (million kWh)	3,533.4		8,020.3		7,726.4		6,283.8	
Plant Factor Based on Nameplate Rating (percent)	71		77		64		58	
Net Peak Demand on Plant - 60 Minutes (MW)	NR		NR		1,190.0		1,171.0	
Net Continuous Plant Capability								
Winter Capability (MW)	557.0		1,061.0		1,142.0		1,123.0	
Summer Capability (MW)	541.0		1,023.0		1,142.0		1,150.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	617		88		1,002		4,734	
Structures and Improvements	83,319		136,879		1,446,752		898,215	
Equipment	327,721		503,715		2,266,236		1,704,159	
Total	411,658		640,682		3,713,990		2,607,108	
Cost per kW of Installed Capacity (dollars)	724		540		2,706		2,110	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	8,355	2.36	10,060	1.25	27,746	3.59	15,522	2.47
Coolants and Water	99	.03	251	.03	714	.09	2,633	.42
Steam Expenses	8,336	2.36	7,749	.97	10,250	1.33	3,686	.59
Steam from Other Sources	0	0	0	0	0	0	0	0
Steam Transferred (CR)	0	0	0	0	0	0	0	0
Electric Expenses	641	.18	2,308	.29	7,414	.96	4,103	.65
Miscellaneous Steam Power Expenses	14,991	4.24	12,941	1.61	18,703	2.42	23,846	3.80
Rents	0	0	0	0	1,637	.21	72	.01
Maintenance Expenses								
Maintenance Supervision and Engineering	1,878	.53	2,908	.36	7,057	.91	3,076	.49
Maintenance of Structures	121	.03	539	.07	2,031	.26	6,392	1.02
Maintenance of Boiler Plant	3,194	.90	6,833	.85	13,291	1.72	13,854	2.20
Maintenance of Electric Plant	2,367	.67	4,703	.59	5,796	.75	5,988	.95
Maintenance of Miscellaneous Steam Plant	2,424	.69	3,100	.39	3,687	.48	6,836	1.09
Total, Exclusive of Fuel	42,406	11.99	51,392	6.41	98,326	12.72	86,012	13.69
Fuel	16,539	4.68	46,597	5.81	74,195	9.60	[1] 34,934	5.56
Total Production Expenses	58,945	16.70	97,989	12.22	172,521	22.32	120,946	19.30
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	0	0	0	0
Btu per Gallon; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Uranium (grams); Cost per Gram (dollars)	322,249	51.32	753,744	61.82	[2] 0	0	[3] 0	0
Thousand Btu per Gram; Cents per Million Btu	NR	44	NR	53	0	0	0	0
Cost per Gram, as Delivered F.O.B. Plant (dollars)	0	NR	0	NR	0	0	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	10,620		10,880		-		-	
Plant Hours Connected to Load	7,023		8,760		7,100		6,134	
Total Number of Units (Exclusive of Auxiliary Units)	1		2		1		1	
Condensing Water Supply	Mississippi Rv		Mississippi Rv		Radial Wells		Cooling Tower	
Average Number of Employees	254		330		1,184		829	
Type of Plant Construction	Conv-BWR		Conv-PWR		Conv-BWR		Conv-PWR	
Initial Year of Plant Operation	1971		1973		1985		1984	

[1] Net of $18,570,724 amortization of uranium litigation credits.

[2] Reported 25,365,986 megawatt hours thermal.

[3] Reported 67,609,122 million Btu.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 20. Nuclear Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Nebraska Public Power District		Omaha Public Power District		Jersey Central Power & Light Co		Public Service Electric & Gas Co	
Name of Plant	Cooper Nuclear Sta.		Fort Calhoun		Oyster Creek		Hope Creek	
Region and Power Supply Area	VI-28		VI-28		I-05		I-05	
Location of Plant	Brownville NE		Fort Calhoun NE		Forked River NJ		Salem NJ	
General Operating Characteristics								
Installed Generating Capacity (MW)	835.5		502.0		650.0		1,167.7	
Generation (million kWh)	5,522.1		3,060.6		3,111.3		7,218.3	
Plant Factor Based on Nameplate Rating (percent)	75		70		55		71	
Net Peak Demand on Plant - 60 Minutes (MW)	778.0		492.5		651.0		1,064.0	
Net Continuous Plant Capability								
Winter Capability (MW)	778.0		492.0		628.0		1,067.0	
Summer Capability (MW)	760.0		476.0		620.0		1,067.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	1,772		846		4,923		1,442	
Structures and Improvements	128,777		73,958		143,442		1,257,615	
Equipment	251,744		184,134		442,417		2,759,885	
Total	382,294		258,938		590,782		4,018,941	
Cost per kW of Installed Capacity (dollars)	458		516		909		3,442	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	24,448	4.43	4,379	1.43	40,734	13.09	4,923	0.68
Coolants and Water	340	.06	463	.15	975	.31	760	.11
Steam Expenses	6,777	1.23	11,538	3.77	27,121	8.72	6,732	.93
Steam from Other Sources	0	0	0	0	0	0	0	0
Steam Transferred (CR)	0	0	0	0	0	0	1	0
Electric Expenses	176	.03	190	.06	771	.25	2,791	.39
Miscellaneous Steam Power Expenses	5,738	1.04	17,884	5.84	18,307	5.88	33,070	4.58
Rents	0	0	-913	-.30	0	0	0	0
Maintenance Expenses								
Maintenance Supervision and Engineering	924	.17	1,316	.43	2,192	.70	6,779	.94
Maintenance of Structures	382	.07	1,956	.64	438	.14	1,585	.22
Maintenance of Boiler Plant	6,099	1.10	4,850	1.58	11,181	3.59	7,540	1.04
Maintenance of Electric Plant	3,933	.71	2,222	.73	1,705	.55	2,248	.31
Maintenance of Miscellaneous Steam Plant	1,445	.26	-921	-.30	10,106	3.25	2,993	.41
Total, Exclusive of Fuel	50,242	9.10	42,964	14.03	113,530	36.48	69,422	9.61
Fuel	35,766	6.48	23,164	7.57	26,012	8.36	66,597	9.23
Total Production Expenses	86,008	15.58	66,129	21.61	139,542	44.85	136,019	18.84
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	0	0	0	0
Btu per Gallon; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Uranium (grams); Cost per Gram (dollars)	0	0	305,360	75.86	549,000	47.39	1,422,371	46.81
Thousand Btu per Gram; Cents per Million Btu	0	0	106,184	71	60,242	79	54,488	86
Cost per Gram, as Delivered F.O.B. Plant (dollars)	0	0	0	NR	0	NR	0	NR
Plant Characteristics								
Average Btu per kWh Net Generation	-		10,594		10,629		10,733	
Plant Hours Connected to Load	8,293		6,531		2,311		7,457	
Total Number of Units (Exclusive of Auxiliary Units)	1		1		1		1	
Condensing Water Supply	Missouri River		Missouri River		So. Br. Forked River		Delaware	
Average Number of Employees	341		56		1,271		401	
Type of Plant Construction	Conv-BWR		Conv-PWR		Conv-BWR		Conv-BWR	
Initial Year of Plant Operation	1974		1973		1969		1987	

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 20. Nuclear Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Public Service Electric & Gas Co		Consolidated Edison Co of NY		Niagara Mohawk Power Corp		Power Authority of State of NY	
Name of Plant	Salem		Indian Point		Nine Mile Point		Indian Point #3	
Region and Power Supply Area Location of Plant	I-05 Lower Alloways CreekNJ		I-04 Buchanan NY		I-03 Scriba NY		I-04 Peekskill NY	
General Operating Characteristics								
Installed Generating Capacity (MW)	2,340.0		1,013.0		642.0		1,013.0	
Generation (million kWh)	12,334.9		5,126.8		4,615.2		4,850.6	
Plant Factor Based on Nameplate Rating (percent)	60		58		82		55	
Net Peak Demand on Plant - 60 Minutes (MW)	2,226.0		NR		649.0		994.0	
Net Continuous Plant Capability								
Winter Capability (MW)	2,240.0		864.0		610.0		965.0	
Summer Capability (MW)	2,212.0		849.0		610.0		965.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	1,030		1,785		885		747	
Structures and Improvements	465,445		181,510		117,115		138,146	
Equipment	1,601,725		367,069		425,908		589,467	
Total	2,068,200		550,365		543,908		728,362	
Cost per kW of Installed Capacity (dollars)	884		543		847		719	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	12,854	1.04	13,694	2.67	3,215	0.70	13,496	2.78
Coolants and Water	742	.06	0	0	54	.01	0	0
Steam Expenses	9,197	.75	0	0	11,197	2.43	1,214	.25
Steam from Other Sources	0	0	0	0	0	0	0	0
Steam Transferred (CR)	0	0	0	0	0	0	0	0
Electric Expenses	2,499	.20	0	0	1,467	.32	1,236	.25
Miscellaneous Steam Power Expenses	63,014	5.11	40,903	7.98	-17,602	-3.61	11,040	2.28
Rents	243	.02	91	.02	2,236	.48	0	0
Maintenance Expenses								
Maintenance Supervision and Engineering	13,040	1.06	19,939	3.89	791	.17	1,979	.41
Maintenance of Structures	6,026	.49	1,828	.36	348	.08	5,561	1.15
Maintenance of Boiler Plant	23,309	1.89	22,961	4.48	3,902	.85	12,431	2.56
Maintenance of Electric Plant	15,822	1.28	5,224	1.02	2,137	.46	11,067	2.28
Maintenance of Miscellaneous Steam Plant	8,269	.67	5,191	1.01	2,857	.62	334	.07
Total, Exclusive of Fuel	155,035	12.57	109,831	21.43	10,602	2.31	58,378	12.03
Fuel	104,138	8.44	33,351	6.51	31,312	6.78	33,970	7.00
Total Production Expenses	259,172	21.01	143,183	27.93	41,915	9.08	92,349	19.04
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	38.7	19.25	0	0	0	0
Btu per Gallon; Cents per Million Btu	0	0	146,589	312	0	0	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	NR	0	0	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Uranium (grams); Cost per Gram (dollars)	2,135,123	46.45	NR	NR	428,600	73.06	904,915	37.54
Thousand Btu per Gram; Cents per Million Btu	62,476	74	NR	56	115,000	64	58,724	64
Cost per Gram, as Delivered F.O.B. Plant (dollars)	0	NR	0	NR	0	NR	0	NR
Plant Characteristics								
Average Btu per kWh Net Generation	10,814		11,442		10,518		10,956	
Plant Hours Connected to Load	7,406		6,332		8,760		5,400	
Total Number of Units (Exclusive of Auxiliary Units)	2		1		1		1	
Condensing Water Supply	Delaware		Hudson River		Lake Ontario		Hudson	
Average Number of Employees	497		524		1,161		536	
Type of Plant Construction	Conv-PWR		Conv-PWR		Conv-BWR		Conv-PWR	
Initial Year of Plant Operation	1977		1962		1969		1976	

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 20. Nuclear Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Power Authority of State of NY		Rochester Gas & Electric Corp		Carolina Power & Light Co			
Name of Plant	James A Fitzpatrick		Ginna		Brunswick		Harris	
Region and Power Supply Area	I-03		I-03		III-21		III-21	
Location of Plant	Oswego NY		Ontario NY		Southport NC		Wake NC	
General Operating Characteristics								
Installed Generating Capacity (MW)	883.0		517.1		1,733.0		951.0	
Generation (million kWh)	4,198.3		3,793.0		9,740.7		3,938.3	
Plant Factor Based on Nameplate Rating (percent)	54		84		64		47	
Net Peak Demand on Plant - 60 Minutes (MW)	825.0		497.0		1,555.0		901.0	
Net Continuous Plant Capability								
Winter Capability (MW)	794.0		470.0		1,580.0		860.0	
Summer Capability (MW)	794.0		470.0		1,580.0		860.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	1,145		465		3,805		67,051	
Structures and Improvements	105,997		54,575		375,444		1,655,066	
Equipment	366,539		254,639		792,688		1,776,238	
Total	473,681		309,679		1,171,937		3,498,355	
Cost per kW of Installed Capacity (dollars)	536		599		676		3,668	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	13,149	3.13	5,852	1.54	5,310	0.55	4,980	1.26
Coolants and Water	0	0	538	.14	2,784	.29	4,255	1.08
Steam Expenses	8,929	2.13	3,543	.93	13,264	1.36	5,744	1.46
Steam from Other Sources	0	0	0	0	0	0	0	0
Steam Transferred (CR)	0	0	0	0	0	0	0	0
Electric Expenses	5,455	1.30	69	.02	1,917	.20	1,069	.27
Miscellaneous Steam Power Expenses	19,486	4.64	17,264	4.56	45,714	4.69	19,045	4.84
Rents	0	0	0	0	0	0	8	0
Maintenance Expenses								
Maintenance Supervision and Engineering	7,314	1.74	1,081	.29	18,567	1.91	3,317	.84
Maintenance of Structures	147	.03	231	.06	11,285	1.16	1,828	.46
Maintenance of Boiler Plant	10,328	2.46	6,264	1.65	13,345	1.37	5,061	1.29
Maintenance of Electric Plant	2,737	.65	1,586	.42	4,310	.44	1,550	.39
Maintenance of Miscellaneous Steam Plant	6,350	1.51	1,315	.35	2,571	.26	469	.12
Total, Exclusive of Fuel	73,875	17.59	37,763	9.96	119,057	12.23	47,326	12.01
Fuel	32,503	7.74	21,202	5.59	54,423	5.59	27,445	6.97
Total Production Expenses	106,378	25.34	58,965	15.55	173,482	17.80	74,773	19.00
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	0	0	0	0
Btu per Gallon; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Uranium (grams); Cost per Gram (dollars)	744,971	43.63	683,736	31.94	1,718,312	NR	885,077	NR
Thousand Btu per Gram; Cents per Million Btu	62,476	72	61,074	52	NR	NR	NR	NR
Cost per Gram, as Delivered F.O.B. Plant (dollars)	0	NR	0	1.16	0	NR	0	NR
Plant Characteristics								
Average Btu per kWh Net Generation	10,651		10,674		10,956		11,712	
Plant Hours Connected to Load	5,895		7,994		8,571		5,894	
Total Number of Units (Exclusive of Auxiliary Units)	1		1		2		1	
Condensing Water Supply	Lake Ontario		Lake Ontario		Cape Fear River		Harris Reservoir	
Average Number of Employees	576		235		1,152		665	
Type of Plant Construction	Conv-BWR		Conv-PWR		Conv-BWR		Conv-PWR	
Initial Year of Plant Operation	1975		1970		1975		1987	

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 20. Nuclear Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Cleveland Electric Illum Co		Toledo Edison Co		Portland General Electric Co		Duquesne Light Co	
Name of Plant	Perry		Davis-Besse		Trojan		Beaver Valley	
Region and Power Supply Area Location of Plant	II-08 Lake OH		II-09 Oak Harbor OH		VII-44 Prescott OR		I-05 Shippingport PA	
General Operating Characteristics								
Installed Generating Capacity (MW)	1,253.0		962.0		1,216.0		1,846.8	
Generation (million kWh)	2,417.3		5,063.9		4,347.8		6,506.3	
Plant Factor Based on Nameplate Rating (percent)	22		60		41		40	
Net Peak Demand on Plant - 60 Minutes (MW)	1,094.4		883.0		1,117.0		1,515.0	
Net Continuous Plant Capability								
Winter Capability (MW)	1,142.0		866.0		1,104.0		1,643.0	
Summer Capability (MW)	1,129.0		856.0		1,104.0		1,643.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	9,449		1,411		929		2,030	
Structures and Improvements	638,959		118,328		145,471		588,093	
Equipment	4,550,466		829,209		519,097		2,959,940	
Total	5,198,874		948,949		665,497		3,550,073	
Cost per kW of Installed Capacity (dollars)	4,149		986		547		1,922	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	2,812	1.16	29,757	5.85	23,030	5.30	17,109	2.63
Coolants and Water	122	.05	81	.02	915	.21	1,112	.17
Steam Expenses	541	.22	8,808	1.73	9,709	2.23	6,252	.96
Steam from Other Sources	0	0	0	0	0	0	0	0
Steam Transferred (CR)	0	0	0	0	0	0	0	0
Electric Expenses	6,863	2.84	234	.05	1,165	.27	203	.03
Miscellaneous Steam Power Expenses	20,271	8.39	62,011	12.20	12,505	2.88	25,762	3.96
Rents	437	.18	0	0	0	0	11,111	1.71
Maintenance Expenses								
Maintenance Supervision and Engineering	237	.10	8,249	1.62	9,907	2.28	4,653	.72
Maintenance of Structures	314	.13	896	.18	1,138	.26	1,177	.18
Maintenance of Boiler Plant	3,511	1.45	4,600	.90	12,169	2.80	4,124	.63
Maintenance of Electric Plant	1,181	.49	3,203	.63	3,254	.75	3,083	.48
Maintenance of Miscellaneous Steam Plant	4,577	1.89	7,580	1.49	5,339	1.23	3,022	.46
Total, Exclusive of Fuel	40,866	16.90	125,421	24.67	79,131	18.21	77,618	11.93
Fuel	11,146	4.61	47,795	9.40	21,056	4.84	65,633	10.09
Total Production Expenses	52,012	21.52	173,216	34.07	100,187	23.04	143,252	22.02
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	0	0	0	0
Btu per Gallon; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Uranium (grams); Cost per Gram (dollars)	[1] 0	0	[2] NR	NR	611,584	34.43	[3] 0	0
Thousand Btu per Gram; Cents per Million Btu	0	0	NR	NR	78,464	44	0	0
Cost per Gram, as Delivered F.O.B. Plant (dollars)	0	0	0	NR	0	34.43	0	0
Plant Characteristics								
Average Btu per kWh Net Generation	–		11,116		11,037		–	
Plant Hours Connected to Load	774		7,312		4,632		8,755	
Total Number of Units (Exclusive of Auxiliary Units)	1		1		1		1	
Condensing Water Supply	Lake Erie		Cooling Tower		Columbia		Ohio River	
Average Number of Employees	1,396		1,104		423		NR	
Type of Plant Construction	Conv-BWR		Conv-PWR		Conv-PWR		Conv-PWR	
Initial Year of Plant Operation	1987		1977		1976		1976	

---

[1] Reported 8,331,303 million Btu.
[2] Reported 28,973,319 million Btu.
[3] Reported 70,308 million Btu.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 20. Nuclear Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Pennsylvania Electric Co	Pennsylvania Power & Light Co	Philadelphia Electric Co	
Name of Plant	Three Mile Island	Susquehanna	Limerick	Peach Bottom
Region and Power Supply Area	I-05	I-05	I-05	I-05
Location of Plant	Middletown PA	Berwick PA	York County PA	York County PA
General Operating Characteristics				
Installed Generating Capacity (MW)	871.0	2,304.4	1,092.0	2,304.0
Generation (million kWh)	5,025.1	14,761.3	5,3[illegible].4	3,012.3
Plant Factor Based on Nameplate Rating (percent)	66	73	56	15
Net Peak Demand on Plant - 60 Minutes (MW)	1,845.0	2,342.2	1,060.0	2,144.0
Net Continuous Plant Capability				
Winter Capability (MW)	800.0	2,100.0	1,062.0	2,089.0
Summer Capability (MW)	776.0	2,100.0	1,055.0	2,065.0
Historical Plant Cost (thousand dollars)				
Land and Land Rights	84	6,139	7,904	441
Structures and Improvements	126,242	981,618	813,636	264,039
Equipment	457,185	3,252,420	3,030,281	981,926
Total	583,511	4,240,177	3,851,822	1,246,406
Cost per kW of Installed Capacity (dollars)	670	1,840	3,527	541

Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	22,964	4.57	16,679	1.13	18,166	3.41	46,076	15.30
Coolants and Water	572	.11	3,041	.21	4,171	.78	908	.30
Steam Expenses	18,006	3.58	18,147	1.23	29,609	5.57	24,331	8.08
Steam from Other Sources	0	0	0	0	0	0	0	0
Steam Transferred (CR)	0	0	0	0	0	0	0	0
Electric Expenses	2,121	.42	2,564	.17	1,362	.26	1,864	.62
Miscellaneous Steam Power Expenses	63,257	12.59	43,671	2.96	38,098	7.16	40,285	13.37
Rents	0	0	316	.02	0	0	66	.02
Maintenance Expenses								
Maintenance Supervision and Engineering	5,308	1.06	17,332	1.17	9,646	1.81	13,343	4.43
Maintenance of Structures	1,005	.20	5,820	.39	6,997	1.32	7,306	2.44
Maintenance of Boiler Plant	13,418	2.67	17,660	1.20	15,680	2.95	38,116	12.65
Maintenance of Electric Plant	6,316	1.26	7,090	.48	5,823	1.09	10,359	3.44
Maintenance of Miscellaneous Steam Plant	2,062	.41	1,260	.09	6,434	1.21	21,130	7.02
Total, Exclusive of Fuel	135,031	26.87	133,580	9.05	135,986	25.56	203,819	67.67
Fuel	27,574	5.49	112,764	7.64	42,168	7.93	42,694	14.17
Total Production Expenses	162,604	32.36	246,344	16.70	178,154	33.49	246,513	81.84

Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	0	0	0	0
Btu per Gallon; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Barrel, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Uranium (grams); Cost per Gram (dollars)	938,785	29.37	[1] 0	0	1,004,781	40.24	537,502	79.22
Thousand Btu per Gram; Cents per Million Btu	98,856	52	0	0	86,100	61	61,839	130
Cost per Gram, as Delivered F.O.B. Plant (dollars)	0	NR	0	0	0	NR	0	NR

Plant Characteristics	Three Mile Island	Susquehanna	Limerick	Peach Bottom
Average Btu per kWh Net Generation	10,627	–	11,137	11,056
Plant Hours Connected to Load	6,332	8,683	5,826	1,770
Total Number of Units (Exclusive of Auxiliary Units)	1	2	1	2
Condensing Water Supply	Susquehanna River	Susquehanna River	Schuylkill	Susquehanna River
Average Number of Employees	1,301	711	725	650
Type of Plant Construction	Conv-PWR	Conv-BWR	Conv-BWR	Conv-BWR
Initial Year of Plant Operation	1974	1983	1986	1974

[1] Reported 1,959,600 megawatt days thermal.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 20. Nuclear Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Carolina Power & Light Co		Duke Power Co					
Name of Plant	H B Robinson		Catawba		McGuire		Oconee	
Region and Power Supply Area Location of Plant	III-21 Hartsville SC		III-21 York SC		III-21 Cornelius SC		III-21 Seneca SC	
General Operating Characteristics								
Installed Generating Capacity (MW)	769.0		2,410.1		2,440.6		2,666.6	
Generation (million kWh)	4,230.3		13,547.3		14,921.3		16,341.7	
Plant Factor Based on Nameplate Rating (percent)	63		64		70		70	
Net Peak Demand on Plant - 60 Minutes (MW)	757.0		2,306.0		2,331.0		2,347.0	
Net Continuous Plant Capability								
Winter Capability (MW)	700.0		2,290.0		2,300.0		2,580.0	
Summer Capability (MW)	665.0		2,290.0		2,300.0		2,580.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	51		2,656		564		1,229	
Structures and Improvements	105,033		1,022,653		471,680		144,938	
Equipment	316,292		2,591,029		1,524,152		707,735	
Total	421,376		3,616,338		1,996,406		853,902	
Cost per kW of Installed Capacity (dollars)	548		1,500		818		320	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	3,798	0.90	9,228	0.68	8,486	0.57	10,114	0.62
Coolants and Water	191	.05	4,295	.32	3,032	.20	3,469	.21
Steam Expenses	7,304	1.73	15,017	1.11	14,677	.99	18,652	1.14
Steam from Other Sources	0	0	0	0	0	0	0	0
Steam Transferred (CR)	0	0	0	0	0	0	0	0
Electric Expenses	1,149	.27	6,149	.45	5,228	.35	6,731	.41
Miscellaneous Steam Power Expenses	15,990	3.78	20,525	1.52	25,711	1.72	22,519	1.38
Rents	0	0	0	0	0	0	0	0
Maintenance Expenses								
Maintenance Supervision and Engineering	5,125	1.21	15,607	1.15	15,921	1.07	14,559	.89
Maintenance of Structures	3,016	.71	3,229	.24	6,380	.43	6,903	.42
Maintenance of Boiler Plant	9,964	2.36	11,130	.82	23,397	1.57	22,844	1.40
Maintenance of Electric Plant	3,442	.81	15,008	1.11	16,113	1.08	15,104	.92
Maintenance of Miscellaneous Steam Plant	2,086	.49	18,610	1.37	26,720	1.79	37,756	2.31
Total, Exclusive of Fuel	52,657	12.46	118,798	8.77	145,665	9.76	158,651	9.70
Fuel	22,188	5.24	110,359	8.15	104,697	7.02	103,486	6.33
Total Production Expenses	74,845	17.70	229,157	16.92	250,362	16.78	262,137	16.04
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	0	0	0	0
Btu per Gallon; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Uranium (grams), Cost per Gram (dollars)	723,145	NR	2,311,716	47.49	2,409,623	43.40	2,779,177	37.32
Thousand Btu per Gram; Cents per Million Btu	NR	NR	140,462	78	152,369	66	171,846	60
Cost per Gram, as Delivered F.O.B. Plant (dollars)	0	NR	0	NR	0	NR	0	NR
Plant Characteristics								
Average Btu per kWh Net Generation	10,868		10,368		10,212		10,516	
Plant Hours Connected to Load	8,226		8,338		8,711		8,760	
Total Number of Units (Exclusive of Auxiliary Units)	1		2		2		3	
Condensing Water Supply	Artifical Lake		Lake Wylie		Lake Norman		Keowee	
Average Number of Employees	394		965		823		896	
Type of Plant Construction	Conv-PWR		Conv-PWR		Conv-PWR		Conv-PWR	
Initial Year of Plant Operation	1971		1985		1981		1973	

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 20. Nuclear Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	South Carolina Electric & Gas Co		Tennessee Valley Authority		Vermont Yankee Nuclear Pwr Co		Virginia Electric & Power Co	
Name of Plant	V C Summer		Sequoyah [1]		Vermont Yankee		North Anna	
Region and Power Supply Area	III-21		III-20		I-02		III-18	
Location of Plant	Jenkinsville SC		Daisy TN		Vernon VT		Mineral VA	
General Operating Characteristics								
Installed Generating Capacity (MW)	954.0		2,441.1		563.0		1,959.0	
Generation (million kWh)	5,199.2		-112.3		3,536.4		9,222.4	
Plant Factor Based on Nameplate Rating (percent)	62		–		72		54	
Net Peak Demand on Plant - 60 Minutes (MW)	894.0		NR		NR		1,868.8	
Net Continuous Plant Capability								
Winter Capability (MW)	894.0		2,296.0		528.0		1,830.0	
Summer Capability (MW)	885.0		2,296.0		496.0		1,830.0	
Historical Plant Cost (thousand dollars)								
Land and Land Rights	9,728		3,184		839		36,499	
Structures and Improvements	348,040		453,170		57,725		362,066	
Equipment	926,728		1,390,570		197,482		1,228,876	
Total	1,284,496		1,846,925		256,046		1,627,441	
Cost per kW of Installed Capacity (dollars)	1,346		757		455		831	
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	11,068	2.13	64,668	.0	11,413	3.23	14,422	1.56
Coolants and Water	586	.11	1,566	0	85	.02	977	.11
Steam Expenses	8,795	1.69	3,287	0	12,443	3.52	5,978	.65
Steam from Other Sources	0	0	0	0	0	0	1	0
Steam Transferred (CR)	0	0	0	0	0	0	1	0
Electric Expenses	2,961	.57	1,055	0	18	.01	482	.05
Miscellaneous Steam Power Expenses	24,941	4.80	34,816	0	10,909	3.08	19,511	2.12
Rents	0	0	0	0	314	.09	421	.05
Maintenance Expenses								
Maintenance Supervision and Engineering	2,652	.51	41,961	0	2,949	.83	7,740	.84
Maintenance of Structures	2,754	.53	5,718	0	238	.07	1,368	.15
Maintenance of Boiler Plant	5,591	1.08	16,816	0	7,467	2.11	30,531	3.31
Maintenance of Electric Plant	1,093	.21	5,895	0	3,412	.96	8,237	.89
Maintenance of Miscellaneous Steam Plant	3,122	.60	2,815	0	513	.15	13,986	1.52
Total, Exclusive of Fuel	63,563	12.23	198,797	0	49,761	14.07	103,658	11.25
Fuel	30,674	5.90	1,250	0	26,306	7.44	47,928	5.20
Total Production Expenses	94,236	18.13	200,048	0	76,067	21.51	151,586	16.43
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0	0	0
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	0	0	0	0
Btu per Gallon; Cents per Million Btu	0	0	0	0	0	0	0	0
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0	0	0
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0	0	0
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0	0	0
Uranium (grams); Cost per Gram (dollars)	915,533	33.50	[2] 0	0	492,645	53.38	816,320	58.71
Thousand Btu per Gram; Cents per Million Btu	62,779	54	0	0	87,900	58	122,858	47
Cost per Gram, as Delivered F.O.B. Plant (dollars)	0	NR	0	0	0	NR	0	29.25
Plant Characteristics								
Average Btu per kWh Net Generation	10,793		–		10,678		10,876	
Plant Hours Connected to Load	6,312		NR		NR		7,336	
Total Number of Units (Exclusive of Auxiliary Units)	1		2		1		2	
Condensing Water Supply	Broad River		Chickamaunga Res		Connecticut River		North Anna River	
Average Number of Employees	1,327		3,068		NR		647	
Type of Plant Construction	Conv-PWR		Conv-PWR		Conv-BWR		Conv-PWR	
Initial Year of Plant Operation	1984		1981		1972		1978	

[1] Did not operate in 1987.

[2] Reported 8,448 million Btu.

NR = Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Table 20. Nuclear Steam-Electric Plant Costs and Production Expenses by Plant, 1987 (Continued)

Name of Utility	Virginia Electric & Power Co		Wisconsin Electric Power Co		Wisconsin Public Service Corp			
Name of Plant	Surry		Point Beach		Kewaunee			
Region and Power Supply Area Location of Plant	III-18 Gravel Neck VA		IV-13 Two Creeks WI		IV-13 Kewaunee County WI			
General Operating Characteristics								
Installed Generating Capacity (MW)	1,695.0		1,047.6		535.0			
Generation (million kWh)	9,424.4		7,170.3		4,008.6			
Plant Factor Based on Nameplate Rating (percent)	63		78		86			
Net Peak Demand on Plant - 60 Minutes (MW)	1,577.0		1,017.0		528.0			
Net Continuous Plant Capability								
Winter Capability (MW)	1,562.0		970.0		524.0			
Summer Capability (MW)	1,562.0		970.0		525.3			
Historical Plant Cost (thousand dollars)								
Land and Land Rights	441		624		1,059			
Structures and Improvements	197,076		36,570		43,858			
Equipment	788,447		216,068		235,165			
Total	985,964		253,262		280,082			
Cost per kW of Installed Capacity (dollars)	582		242		523			
Power Production Expenses	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh	$1,000	Mills/kWh
Operation Expenses								
Operation Supervision and Engineering	13,790	1.46	4,553	0.64	8,313	2.07		
Coolants and Water	2,006	.21	1,412	.20	104	.03		
Steam Expenses	11,791	1.25	9,025	1.26	5,577	1.39		
Steam from Other Sources	0	0	0	0	0	0		
Steam Transferred (CR)	1	0	0	0	0	0		
Electric Expenses	30	0	1,286	.18	1,222	.30		
Miscellaneous Steam Power Expenses	14,648	1.55	13,289	1.85	9,750	2.43		
Rents	46	0	0	0	1,620	.40		
Maintenance Expenses								
Maintenance Supervision and Engineering	8,535	.91	770	.11	2,679	.67		
Maintenance of Structures	3,067	.33	936	.13	510	.13		
Maintenance of Boiler Plant	13,937	1.48	10,916	1.52	6,251	1.56		
Maintenance of Electric Plant	6,321	.67	4,084	.57	2,527	.63		
Maintenance of Miscellaneous Steam Plant	2,467	.26	1,154	.16	436	.11		
Total, Exclusive of Fuel	76,639	8.12	47,425	6.62	38,989	9.72		
Fuel	63,976	6.79	38,032	5.30	20,370	5.08		
Total Production Expenses	140,614	14.92	85,457	11.92	59,359	14.81		
Fuel Used	Amount	Cost	Amount	Cost	Amount	Cost	Amount	Cost
Coal Burned (1,000 short tons); Cost per Ton (dollars)	0	0	0	0	0	0		
Btu per Pound; Cents per Million Btu	0	0	0	0	0	0		
Cost per Ton, as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0		
Oil Burned (1,000 Bbls); Cost per Barrel (dollars)	0	0	0	0	0	0		
Btu per Gallon; Cents per Million Btu	0	0	0	0	0	0		
Cost per Barrel; as Delivered F.O.B. Plant (dollars)	0	0	0	0	0	0		
Gas Burned (MMcf); Cost per Mcf (dollars)	0	0	0	0	0	0		
Btu per Cubic Foot; Cents per Million Btu	0	0	0	0	0	0		
Uranium (grams); Cost per Gram (dollars)	[1] 905,962	70.62	[2] 0	0	[3] NR	NR		
Thousand Btu per Gram; Cents per Million Btu	113,079	62	0	0	NR	NR		
Cost per Gram, as Delivered F.O.B. Plant (dollars)	0	30.56	0	0	0	NR		
Plant Characteristics								
Average Btu per kWh Net Generation	10,878		–		10,741			
Plant Hours Connected to Load	7,468		7,343		7,812			
Total Number of Units (Exclusive of Auxiliary Units)	2		2		1			
Condensing Water Supply	James River		Lake Michigan		Lake Michigan			
Average Number of Employees	622		287		225			
Type of Plant Construction	Conv-PWR		Conv-PWR		Conv-PWR			
Initial Year of Plant Operation	1972		1970		1974			

[1] Excludes capitalized lease charges.

[2] Reported 917,761 megawatt days thermal.

[3] Reported 525,636 megawatt days thermal.

NR=Not reported.

Notes: Totals may not equal sum of components because of independent rounding.

Source: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees, and Others," and Energy Information Administration, Form EIA-412, "Annual Report of Public Electric Utilities."

Appendix A

List of Plants by Utility Within State

Appendix A

List of Plants by Utility Within State

State Utility Plant	Page
Alabama	
Alabama Power Co	
Bankhead Dam (H)	19
Barry (F)	106
Gorgas (F)	106
H. Neely Henry Dam (H)	19
Harris Dam (H)	19
Holt Dam (H)	19
James H Miller Jr (F)	106
Jordan (H)	20
Joseph M Farley (N)	227
Lay Dam (H)	20
Lewis Smith Dam (H)	20
Logan Martin Dam (H)	20
Martin Dam (H)	21
Mitchell Dam (H)	21
Thurlow Dam (H)	21
Walter Bouldin Dam (H)	21
Weiss Dam (H)	22
Yates Dam (H)	22
Southern Electric Generating Co	
E C Gaston (F)	106
Tennessee Valley Authority	
Browns Ferry (N)	227
Colbert (F)	107
Widows Creek (F)	107
Wilson (H)	22
Alaska	
Anchorage City of	
Anchorage No 1 (G)	207
George M Sullivan (G)	207
Arizona	
Alamito Co	
Springerville (F)	107
Arizona Public Service Co	
Cholla (F)	107
Ocotillo (G)	207
Palo Verde (N)	227
Phoenix (G)	207
Saguaro (G)	208
Yucca (G)	208
Salt River Proj Ag I & P Dist	
Coronado (F)	108
Horse Mesa (H)	22
Mormon Flat (H)	23
Navajo (F)	108
Roosevelt (H)	23
San Tan (F)	108
Arkansas	
Arkansas Power & Light Co	
Arkansas Nuclear One (N)	227
Carpenter (H)	23
Independence (F)	108
White Bluff (F)	109
Corp of Engineers	
Bull Shoals Lake (H)	23
Dardanelle (H)	24
Dworshak (H)	24
Southwestern Electric Power Co	
Flint Creek (F)	109
California	
Burbank City of	
Magnolia Blvd (F)	109
Glendale City of	
Grayson (G)	208
Imperial Irrigation District	
Drop No 4 (H)	24
Los Angeles City of	
Castaic Power Plant (H)	24
Control Gorge Power (H)	25
Foothill Power Plt. (H)	25
Haynes (F)	109
Middle Gorge Pwr Plt (H)	25
San Francisquito #2 (H)	25
San Francisquito Pwr (H)	26
Upper Gorge Pwr Plt (H)	26
Pacific Gas & Electric Co	
A G Wishon (H)	26
Avon (F)	110
Balch No 1 (H)	26
Balch No 2 (H)	27
Belden (H)	27
Bucks Creek (H)	27
Butt Valley (H)	27
Caribou No 1 (H)	28
Caribou No 2 (H)	28
Coleman (H)	28
Contra Costa (F)	110
Cresta (H)	28
DeSabla (H)	29
Diablo Canyon (N)	228
Drum No 1 (H)	29
Drum No 2 (H)	29
Dutch Flat (H)	29
El Dorado (H)	30
Electra (H)	30
Haas (H)	30
Halsey (H)	30
Helms (H)	31
James B Black (H)	31
Kerckhoff (H)	31
Kerckhoff 2 (H)	31
Kings River (H)	32
Newcastle (H)	32
Morro Bay (F)	110
Moss Landing (F)	110
Oakland (G)	208
Oleum Steam (F)	111
Pit No 1 (H)	32
Pit No 3 (H)	32
Pit No 4 (H)	33
Pit No 5 (H)	33
Pit No 6 (H)	33
Pit No 7 (H)	33
Pittsburg (F)	111
Poe (H)	34
Potrero (G)	209
Rock Creek (H)	34
Salt Springs (H)	34
Stanislaus (H)	34
Tiger Creek (H)	35
West Point (H)	35

Note: (F) = Fossil-Fueled Steam, (G) = Gas-Turbine, (H) = Hydroelectric, (N) = Nuclear Steam

List of Plants by Utility Within State (Continued)

State Utility Plant	Page
Wise (H)	35
Pacific Power & Light Co	
Copco No 1 (H)	35
Copco No 2 (H)	36
Iron Gate (H)	36
Placer County Water Agency	
French Meadows (H)	36
Middle Fork (H)	36
Ralston (H)	37
Sacramento Municipal Util Dist	
Camino (H)	37
Jaybird (H)	37
Jones Fork (H)	37
Loon Lake (H)	38
Rancho Seco (N)	228
Robbs Peak (H)	38
Union Valley (H)	38
White Rock (H)	38
San Diego Gas & Electric Co	
Encina (F)	111
Naval Station (G)	209
Naval Training Cnt (G)	209
North Island (G)	209
South Bay (F)	111
San Francisco Public Util Comm	
Dion R Holm (H)	39
Moccasin (H)	39
Robert C Kirkwood (H)	39
Southern California Edison Co	
Alamitos (F)	112
Big Creek No 1 (H)	39
Big Creek No 2 (H)	40
Big Creek No 2A (H)	40
Big Creek No 3 (H)	40
Big Creek No 4 (H)	40
Big Creek No 8 (H)	41
Cool Water (F)	112
El Segundo (F)	112
Etiwanda (F)	113
Huntington Beach (F)	113
Kern River No 1 (H)	41
Kern Rivur No 3 (H)	41
Long Beach (F)	113
Mammoth Pool (H)	41
Ormand Beach (F)	113
Redondo Beach (F)	113
San Onofre (N)	228
Turlock Irrigation District	
Don Pedro (H)	42
Walnut (G)	210
Yuba County Water Agency	
Colgate (H)	42
New Narrows (H)	42
Colorado	
Centel Corp	
Pueblo (F)	114
Colorado Springs City of	
George Birdsal (F)	114
Martin Drake (F)	114
Platte River Power Authority	
Rawhide (F)	114
Public Service Co of Colorado	
Cabin Creek (H)	42
Cameo (F)	115
Cherokee (F)	115
Comanche (F)	115
Fort St. Vrain (N)	228
Pawnee (F)	115
Shoshone (H)	43
Connecticut	
Connecticut Light & Power Co	
Norwalk Harbor (F)	116
Rocky River (H)	43
Shepaug (H)	43
Stevenson (H)	43
Connecticut Yankee Atomic Pwr Co	
Haddam (N)	229
Northeast Nuclear Energy Co	
Millstone (N)	229
United Illuminating Co	
Bridgeport Harbor (F)	116
New Haven Harbor (F)	116
Delaware	
Delmarva Power & Light Co	
Edge Moor (F)	116
Indian River (F)	117
Florida	
Florida Power Corp	
Anclote (F)	117
Crystal River (F)	117
Crystal River (N)	229
Debary (G)	210
Intercession City (G)	210
P L Bartow (F)	117
Suwannee River (G)	210
Florida Power & Light Co	
Cape Canaveral (F)	118
Fort Myers (F)	118
Fort Myers (G)	211
Lauderdale (G)	211
Manatee (F)	118
Martin (F)	118
Port Everglades (F)	119
Putnam (F)	119
Riviera (F)	119
Sanford (F)	119
St. Lucie (N)	229
Turkey Point (F)	120
Turkey Point (N)	230
Gulf Power Co	
Crist (F)	120
Scholtz (F)	120
Smith (F)	120
Orlando Utilities Commission	
Stanton Energy (F)	121
Tampa Electric Co	
Big Bend (F)	121
Big Bend (G)	211
F J Gannon (F)	121
Georgia	
Georgia Power Co	
Bartletts Ferry (H)	44
Bowen (F)	121
Edwin I Hatch (N)	230
Goat Rock (H)	44
Hammond (F)	122
Harllee Branch (F)	122
Jack McDonough (F)	122
Lloyd Shoals (H)	44
North Highlands (H)	44
Oliver Dam (H)	45
Sinclair Dam (H)	45
Tallulah Falls (H)	45
Tugalo (H)	45
Vogtle (N)	230
Wallace Dam (H)	46
Wansley (F)	122
Yates (F)	123
Hawaii	
Hawaii Electric Light Co Inc	
W H Hill (F)	123
Hawaiian Electric Co Inc	
Kahe (F)	123
Maui Electric Co Ltd	
Kahului (F)	123
Idaho	
Idaho Power Co	
American Falls (H)	46
Bliss (H)	46
Brownlee (H)	46
C J Strike (H)	47
Cascade (H)	47
Lower Malad (H)	47
Lower Salmon (H)	47

Note: (F) = Fossil-Fueled Steam, (G) = Gas-Turbine, (H) = Hydroelectric, (N) = Nuclear Steam

List of Plants by Utility Within State (Continued)

State Utility Plant	Page
Shoshone Falls (H)	48
Swan Falls (H)	48
Twin Falls (H)	48
Upper Salmon Falls (H)	48
Utah Power & Light Co	
Grace (H)	49
Oneida (H)	49
Washington Water Power Co	
Cabinet Gorge (H)	49
Post Falls (H)	49
Illinois	
Central Illinois Light Co	
Duck Creek (F)	124
E D Edwards (F)	124
Central Illinois Pub Serv Co	
Coffeen (F)	124
Newton (F)	124
Commonwealth Edison Co	
Byron (N)	230
Calumet (G)	211
Collins (F)	125
Crawford (F)	125
Crawford (G)	212
Dresden (N)	231
Electric Junction (G)	212
Joliet 9 (F)	125
Joliet 9 (G)	212
Kinkaid (F)	125
La Salle (N)	231
Powerton (F)	126
Quad Cities (N)	231
Waukegan (F)	126
Will County (F)	126
Zion (N)	231
Electric Energy Inc	
Joppa (F)	126
Illinois Power Co	
Baldwin (F)	127
Clinton (N)	232
Indiana	
Commonwealth Edison Co Inc	
State Line (F)	127
Indiana & Michigan Electric Co	
Rockport (2601) (F)	127
Tanners Creek (F)	127
Indiana-Kentucky Electric Corp	
Clifty Creek (F)	128
Indianapolis Power & Light Co	
Elmer W Stout (F)	128
Perry K (F)	128
Petersburg (F)	128
Northern Indiana Pub Serv Co	
Bailly (F)	129
Dean H Mitchell (F)	129
Michigan City (F)	129
R M Schahfer (F)	129
R M Schahfer (G)	212
Public Service Co of Indiana	
Cayuga (F)	130
Gibson (F)	130
Markland (H)	50
R Gallagher (F)	130
Wabash River (F)	130
Richmond City of	
Whitewater Valley (F)	131
Southern Indiana Gas & Elec Co	
F B Culley (F)	131
Iowa	
Cedar Falls City of	
Streeter Station (F)	131
Interstate Power Co	
Dubuque (F)	131
Iowa Electric Light & Power Co	
Duane Arnold (N)	232
Sixth Street (F)	132
Iowa Power & Light Co	
Council Bluffs (F)	132
Iowa Public Service Co	
George Neal (F)	132
Iowa Southern Utilities Co	
Ottumwa (F)	132
Iowa-Illinois Gas & Elec Co	
Louisa (F)	133
Union Electric Co	
Keokuk (H)	50
Kansas	
Centel Corp	
Cimarron River (F)	133
Coffeyville City of	
Coffeyville (F)	133
Kansas Gas & Electric Co	
Gordon Evans (F)	133
Wolf Creek (N)	232
Kansas Power & Light Co	
Abilene (F)	134
Jeffery Energy Cntr (F)	134
Lawrence (F)	134
McPherson Water City of	
McPherson No 2 (G)	213
Kentucky	
Henderson City of	
Henderson Stat. One (F)	134
Kentucky Utilities Co	
E W Brown (F)	135
Ghent (F)	135
Pineville (F)	135
Kentucky Power Co	
Big Sandy (F)	135
Louisville Gas & Electric Co	
Cane Run (F)	136
Mill Creek (F)	136
Ohio Falls (H)	50
Owensboro City of	
Elmer Smith (F)	136
Tennessee Valley Authority	
Kentucky (H)	50
Paradise (F)	136
Shawnee (F)	137
Louisiana	
Central Louisiana Electric Co	
Dolet Hills (F)	137
Rodemacher (F)	137
Teche (F)	137
Gulf States Utilities Co	
R S Nelson (F)	138
River Bend (N)	232
Willow Glen (F)	138
Louisiana Power & Light Co	
Little Gypsy (F)	138
Nine Mile Point (F)	138
Waterford (F)	139
Waterford 3 (N)	233
New Orleans Public Service Inc	
Market Street (F)	139
Michoud (F)	139
Maine	
Bangor HydroElectric Co	
Graham Station (F)	139
Central Maine Power Co	
Brunswick (H)	51
Gulf Island (H)	51
Harris (H)	51
Skelton (H)	51
Walter F Wyman (F)	140
Weston (H)	52
Williams (H)	52
Wyman (H)	52
Maine Yankee Atomic Power Co	
Maine Yankee (N)	233
Maryland	
Baltimore Gas & Electric Co	
Brandon Shores (F)	140
Calvert Cliffs (N)	233
Herbert A Wagner (F)	140
Philadelphia Electric Co	
Conowingo (H)	52

Note: (F) = Fossil-Fueled Steam, (G) = Gas-Turbine, (H) = Hydroelectric, (N) = Nuclear Steam

List of Plants by Utility Within State (Continued)

State Utility Plant	Page
Potomac Electric Power Co	
Chalk Point (F)	140
Dickerson (F)	141
Morgantown (F)	141
Morgantown (G)	213
Massachusetts	
Boston Edison Co	
Mystic (F)	141
New Boston (F)	141
Pilgrim (N)	233
Cambridge Electric Light Co	
Kendall Square (F)	142
Holyoke Water Power Co	
Hadley Falls (H)	53
New Bedford Gas & Edison Lgt Co	
Cannon Street (F)	142
New England Power Co	
Bear Swamp (H)	53
Brayton Point (F)	142
Salem Harbor (F)	142
Taunton Municipal Light Comm	
Cleary Flood (F)	143
Western Massachusetts Elec Co.	
Cabot (H)	53
Northfield Mountain (H)	53
Yankee Atomic Electric Co	
Nuc Pwr Sta (N)	234
Michigan	
Consumers Power Co	
B C Cobb (F)	143
Big Rock Point (N)	234
Dan E Karn (F)	143
Hardy (H)	54
J C Weadock (F)	143
J H Campbell (F)	144
J R Whiting (F)	144
Ludington (H)	54
Palisades (N)	234
Thetford (G)	213
Detroit Edison Co	
Belle River (F)	144
Hancock (G)	213
Monroe (F)	144
Northeast (G)	214
River Rouge (F)	145
Trenton Channel (F)	145
Edison Sault Electric Co	
Edison Sault (H)	54
Indiana & Michigan Electric Co	
Donald C Cook (N)	234
Lansing City of	
Ottawa Street (F)	145
Marquette City of	
Shiras (F)	145
Upper Peninsula Generating Co	
Presque Isle (F)	146
Upper Peninsula Power Co	
Victoria (H)	54
Wisconsin Electric Power Co	
Big Quinnesec 61 (H)	55
Peavy Falls (H)	55
Minnesota	
Austin City of	
Austin (F)	146
Northeast Station (F)	146
Minnesota Power & Light Co	
Blanchard (H)	55
Clay Boswell (F)	146
Fond Du Lac (H)	55
Thomson (H)	56
New Ulm Public City of	
New Ulm (F)	147
Northern States Power Co	
Allen S King (F)	147
Hennepin Island (H)	56
Monticello (N)	235
Prairie Island (N)	235
Sherburne County (F)	147
Owatonna City of	
Owatonna (F)	147
Rochester City of	
Silver Lake (F)	148
Mississippi	
Greenwood City of	
Henderson (F)	148
Mississippi Power & Light Co	
Baxter Wilson (F)	148
Grand Gulf (N)	235
Natchez (F)	148
Rex Brown (F)	149
Mississippi Power Co	
Jack Watson (F)	149
Standard Oil (G)	214
Victor J Daniel Jr (F)	149
Missouri	
Columbia City of	
Columbia (F)	149
Independence City of	
Missouri City (F)	150
Kansas City Power & Light Co	
Iatan (F)	150
La Cynge (F)	150
Montrose (F)	150
Missouri Public Service Co	
Sibley (F)	151
Union Electric Co	
Callaway (N)	235
Labadie (F)	151
Meramec (F)	151
Osage (H)	56
Rush Island (F)	151
Sioux (F)	152
Taum Sauk (H)	56
Montana	
Corp of Engineers	
Fort Peck (H)	59
Libby (H)	59
Montana Power Co	
Black Eagle (H)	57
Cochrane (H)	57
Colstrip (F)	152
Hauser Lake (H)	57
Holter (H)	57
Kerr (H)	58
Morony (H)	58
Rainbow (H)	58
Ryan (H)	58
Thompson Falls (H)	59
Montana-Dakota Utilities Co	
Lewis & Clark (F)	152
Washington Water Power Co	
Noxon Rapids (H)	59
Nebraska	
Central Nebraska Pub P&I Dist	
Jeffery Canyon (H)	60
Kingsley (H)	60
Grand Island City of	
C W Burdick (F)	152
Hastings City of	
Hastings Energy Ctr (F)	153
Loup River Public Power District	
Columbus (H)	60
Nebraska Public Power District	
Bluffs Plant (F)	153
Cooper Nuclear Sta. (N)	236
Gerald Gentleman (F)	153
North Platte Hydro (H)	60
Omaha Public Power District	
Fort Calhoun (N)	236
Nebraska City (F)	153
Nevada	
Nevada Power Co	
Clark (G)	214
Reid Gardner (F)	154
Sunrise (F)	154

Note: (F) = Fossil-Fueled Steam, (G) = Gas-Turbine, (H) = Hydroelectric, (N) = Nuclear Steam

List of Plants by Utility Within State (Continued)

State Utility Plant	Page
Southern California Edison Co	
Mohave (F)	154
New Hampshire	
New England Power Co	
Comerford (H)	61
S C Moore (H)	61
Public Service Co of New Hampshire	
Amoskeag (H)	61
Merrimack (F)	154
Smith (H)	61
New Jersey	
Atlantic City Electric Co	
B L England (F)	155
Mickleton (G)	214
Jersey Central Power & Light Co	
Oyster Creek (N)	236
Riegel (G)	215
Sayreville (G)	215
Werner (F)	155
Yards Creek (H)	62
Public Service Electric & Gas Co	
Bergen (F)	155
Burlington (G)	215
Edison (G)	215
Essex (G)	216
Hope Creek (N)	236
Hudson (F)	155
Kearny (G)	216
Linden (G)	216
Mercer (F)	156
Salem (N)	237
Vineland City of	
Howard Down (F)	156
New Mexico	
Arizona Public Service Co	
Four Corners (F)	156
Farmington City of	
Animas (F)	156
Public Service Co of New Mexico	
San Juan (F)	157
Southwestern Public Service Co	
Cunningham Station (F)	157
Texas-New Mexico Power Co	
Lordsburg (F)	157
New York	
Central Hudson Gas & Electric Corp	
Danskammer (F)	157
Roseton (F)	158
Consolidated Edison Co of New York	
Arthur Kill (F)	158
Astoria (G)	216
Gowanus (G)	217
Indian Point (N)	237
Narrows (G)	217
Ravenswood (F)	158
Ravenswood (G)	217
Jamestown City of	
S A Carlson (F)	158
Long Island Lighting Co	
E F Barrett (F)	159
E F Barrett (G)	217
Holtsville (G)	218
Northport (F)	159
Port Jefferson (F)	159
New York State Elec & Gas Corp	
Hickling (F)	159
High Falls (H)	62
Jennison (F)	160
Mechanicville (H)	62
Milliken (F)	160
Somerset (F)	160
Niagara Mohawk Power Corp	
Albany (F)	160
Bennetts Bridge (H)	62
C R Huntley (F)	161
Colton (H)	63
Dunkirk (F)	161
E J West (H)	63

State Utility Plant	Page
Five Falls (H)	63
Nine Mile Point (N)	237
Oswego (F)	161
Prospect (H)	63
Rainbow Falls (H)	64
School Street (H)	64
Sherman Island (H)	64
South Colton (H)	64
Spier Falls (H)	65
Stark (H)	65
Stewarts Bridge (H)	65
Trenton Falls (H)	65
Orange & Rockland Utils Inc	
Bowline Point (F)	161
Grahamsville (H)	66
Power Authority of State of New York	
Blenheim - Gilboa (H)	66
Charles Poletti (F)	162
Indian Point #3 (N)	237
James A Fitzpatrick (N)	238
Moses Niagara (H)	66
Moses Power Dam (H)	66
Rochester Gas & Electric Corp	
Ginna (N)	238
Rochester No 5 (H)	67
Rochester No 9 (G)	218
North Carolina	
Carolina Power & Light Co	
Asheville (F)	162
Blewett (H)	67
Brunswick (N)	238
Harris (N)	238
L V Sutton (F)	162
Lee (F)	162
Mayo (F)	163
Roxboro (F)	163
Tillery (H)	67
Walters (H)	67
Duke Power Co	
Belews Creek (F)	163
Cliffside (F)	163
Cowans Ford (H)	68
G G Allen (F)	164
Lookout Shoals (H)	68
Marshall (F)	164
Mountain Island (H)	68
Oxford (H)	68
Riverbend (F)	164
Nantahala Power & Light Co	
Nantahala (H)	69
Thorpe (H)	69
Tapoco Inc	
Cheoah (H)	69
Santeetlah (H)	69
Virginia Electric & Power Co	
Gaston (H)	70
Roanoke Rapids (H)	70
Yadkin Inc	
Falls (H)	70
High Rock (H)	70
Narrows (H)	71
Tuckertown (H)	71
North Dakota	
Corp of Engineers	
Garrison (H)	71
Montana-Dakota Utilities Co	
Coyote (F)	164
Ohio	
Cincinnati Gas & Electric Co	
East Bend (F)	165
Miami Fort (F)	155
Walter C Beckjord (F)	165
Cleveland Electric Illum Co	
Ashtabula (F)	165
Avon Lake (F)	166
East Lake (F)	166
Perry (N)	239
Columbus&Southern Ohio Elec Co	
Conesville (F)	166

Note: (F) = Fossil-Fueled Steam, (G) = Gas-Turbine, (H) = Hydroelectric, (N) = Nuclear Steam

List of Plants by Utility Within State (Continued)

State Utility Plant	Page
Dayton Power & Light Co	
J M Stuart (F)	166
Killen Station (F)	167
Ohio Edison Co	
Gorgs Steam (F)	167
R E Burger (F)	167
W H Sammis (F)	167
Ohio Power Co	
Gen J M Gavin (F)	168
Muskingum River (F)	168
Racine (H)	71
Ohio Valley Electric Corp	
Kyger Creek (F)	168
Orrville City of	
Vine Street (F)	168
Toledo Edison Co	
Bay Shore (F)	169
Davis-Besse (N)	239
Oklahoma	
Corp of Engineers	
Robert S Kerr (H)	72
Table Rock (H)	73
Grand River Dam Authority	
GRDA (F)	169
Markham (H)	72
Pensacola (H)	72
Salina (H)	72
Oklahoma Gas & Electric Co	
Arbuckle (F)	169
Horseshoe Lake (F)	169
Muskogee (F)	170
Mustang (F)	170
Seminole (F)	170
Sooner (F)	170
Public Service Co of Oklahoma	
Northeastern (F)	171
Riverside (F)	171
Oregon	
Corp of Engineers	
Bonneville Dam (H)	78
Dalles (H)	79
John Day (H)	79
McNary (H)	79
Eugene City of	
Carmen Smith (H)	73
Leaburg (H)	73
Weyco Energy Ctr (F)	171
Idaho Power Co	
Hells Canyon (H)	73
Oxbow (H)	74
Pacific Power & Light Co	
Clearwater No 1 (H)	74
Clearwater No 2 (H)	74
Fish Creek (H)	74
John C Boyle (H)	75
Lemolo No 1 (H)	75
Lemolo No 2 (H)	75
Prospect No 2 (H)	75
Slide Creek (H)	76
Soda Springs (H)	76
Toketee Falls (H)	76
Portland General Electric Co	
Bull Run (H)	76
Faraday (H)	77
North Fork (H)	77
Oak Grove (H)	77
Pelton (H)	77
River Mill (H)	78
Round Butte (H)	78
T W Sullivan (H)	78
Trojan (N)	239
Pennsylvania	
Duquesne Light Co	
Beaver Valley (N)	239
Cheswick (F)	171
Elrama (F)	172
Metropolitan Edison Co	
Portland (F)	172
Pennsylvania Electric Co	
Blossburg (G)	218
Conemaugh (F)	172
Homer City (F)	172
Keystone (F)	173
Piney (H)	79
Seneca (H)	80
Shawville (F)	173
Three Mile Island (N)	240
Warren (F)	173
Warren (G)	218
Williamsburg (F)	173
Pennsylvania Power Co	
Bruce Mansfield (F)	174
New Castle (F)	174
Pennsylvania Power & Light Co	
Brunner Island (F)	174
Holtwood (F)	174
Holtwood (H)	80
Martins Creek (F)	175
Montour (F)	175
Sunbury (F)	175
Susquehanna (N)	240
Philadelphia Electric Co	
Croydon (G)	219
Eddystone (F)	175
Limerick (N)	240
Muddy Run (H)	80
Peach Bottom (N)	240
Richmond (G)	219
Safe Harbor Water Power Corp	
Safe Harbor (H)	80
UGI Corp	
Hunlock (F)	176
West Penn Power Co	
Armstrong (F)	176
Hatfields Ferry (F)	176
South Carolina	
Carolina Power & Light Co	
H B Robinson (N)	241
Duke Power Co	
Catawba (N)	241
Cedar Creek (H)	81
Dearborn (H)	81
Fishing Creek (H)	81
Jocassee (H)	81
McGuire (N)	241
Oconee (N)	241
Wateree (H)	82
Wylie (H)	82
Lockhart Power Co	
Lockhart (H)	82
South Carolina Electric & Gas Co	
Canadys Steam (F)	176
Fairfield (H)	82
Hagood Steam (F)	177
McMeekin Steam (F)	177
Parr Hydro (H)	83
Saluda Hydro (H)	83
Stevens Creek Hydro (H)	83
Urquhart Steam (F)	177
V C Summer (N)	242
Wateree Steam (F)	177
South Carolina Pub Serv Auth	
Cross (F)	178
Jeffries (H)	83
Winyah (F)	178
South Dakota	
Black Hills Power & Light Co	
Ben French (F)	178
Kirk (F)	178
Corp of Engineers	
Big Bend (H)	84
Fort Randall (H)	84
Oahe (H)	84
Otter Tail Power Co	
Big Stone (F)	179

Note: (F) = Fossil-Fueled Steam, (G) = Gas-Turbine, (H) = Hydroelectric, (N) = Nuclear Steam

List of Plants by Utility Within State (Continued)

State Utility Plant	Page
Tennessee	
Tapoco Inc	
Calderwood (H)	84
Chilowee (H)	85
Tennessee Valley Authority	
Allen (F)	179
Bull Run (F)	179
Cumberland (F)	179
Gallatin (F)	180
John Sevier (F)	180
Johnsonville (F)	180
Kingston (F)	180
Pickwick (H)	85
Raccoon Mountain (H)	85
Sequoyah (N)	242
Texas	
Central Power & Light Co	
Barney M Davis (F)	181
Coleto Creek (F)	181
La Palma (G)	219
Nueces Bay (F)	181
El Paso Electric Co	
Newman (F)	181
Greenville City of	
Power Lane (F)	182
Gulf States Utilities Co	
Lewis Creek (F)	182
Sabine (F)	182
Houston Lighting & Power Co	
Cedar Bayou (F)	182
Greens Bayou (F)	183
Greens Bayou (G)	219
Limestone (F)	183
P H Robinson (F)	183
Sam Barton (F)	183
T H Wharton (F)	184
T H Wharton (G)	220
W A Parish (F)	184
Webster (F)	184
Lower Colorado River Authority	
Fayette Power Proj (F)	184
Marshall Ford (H)	85
Lubbock City of	
Plant No 2 (F)	185
San Antonio City of	
J T Deely (F)	185
O W Sommers (F)	185
Southwestern Electric Power Co	
Knox Lee (F)	185
Pirkey (F)	186
Welsh (F)	186
Wilkes (F)	186
Southwestern Public Service Co	
Celanese (G)	220
Harrington Station (F)	186
Jones Station (F)	187
Nichols Station (F)	187
Tolk Station (F)	187
Texas Utilities Electric Co	
De Cordova (F)	187
Graham (F)	188
Handley (F)	188
Lake Hubbard (F)	188
Morgan Creek (F)	188
Mountain Creek (F)	189
North Lake (F)	189
North Main (F)	189
Permian Basin (F)	189
Sandow (F)	190
Stryker Creek (F)	190
Tradinghouse (F)	190
Valley (F)	190
West Texas Utilities Co	
Abilene (F)	191
Concho (F)	191
Fort Phantom (F)	191
Lake Pauline (F)	191
Oak Creek (F)	192
Oklaunion (F)	192
Rio Pecos (F)	192
San Angelo (F)	192
Utah	
Utah Power & Light Co	
Cutler (H)	86
Hale (F)	193
Hunter (Emery) (F)	193
Huntington (F)	193
Little Mountain (G)	220
Vermont	
Burlington City of	
Joseph C. McNeil (F)	193
New England Power Co	
Bellows Falls (H)	86
Harriman (H)	86
Vernon (H)	86
Wilder (H)	87
Vermont Yankee Nuclear Pwr Co	
Vermont Yankee (N)	242
Virginia	
Appalachian Power Co	
Clayton (H)	87
Clinch River (F)	194
Smith Mountain (H)	87
Potomac Electric Power Co	
Potomac River (F)	194
Virginia Electric & Power Co	
Bath County (H)	87
Chesterfield (F)	194
North Anna (N)	242
Portsmouth (F)	194
Portsmouth (G)	220
Possum Point (F)	195
Surry (N)	243
Washington	
Corp of Engineers	
Chief Joseph (H)	94
Ice Harbor (H)	94
Little Goose (H)	94
Lower Granite (H)	94
Lower Monumental (H)	95
Pacific Power & Light Co	
Centralia (F)	195
Merwin (H)	88
Swift No 1 (H)	88
Swift No 2 (H)	88
Yale (H)	88
Puget Sound Power & Light Co	
Electron (H)	89
Fredonia (G)	221
Lower Baker (H)	89
Snoqualmie (H)	89
Upper Baker (H)	89
White River (H)	90
PUD No 1 of Chelan County 1	
Rock Island (H)	90
Rocky Reach (H)	90
PUD No 2 of Grant County	
Priest Rapids (H)	90
Wanapum (H)	91
Seattle City of	
Boundary (H)	91
Cedar Falls (H)	91
Diablo (H)	91
Gorge (H)	92
Ross Dam (H)	92
Tacoma City of	
Alder (H)	92
Cushman No 1 (H)	92
Cushman No 2 (H)	93
La Grande (H)	93
Mayfield (H)	93
Mossyrock (H)	93
Washington Water Power Co	
Kettle Falls (F)	195
Little Falls (H)	95
Long Lake (H)	95
Nine Mile (H)	95
Upper Falls (H)	96

Note: (F) = Fossil-Fueled Steam, (G) = Gas-Turbine, (H) = Hydroelectric, (N) = Nuclear Steam

List of Plants by Utility Within State (Continued)

State Utility Plant	Page
West Virginia	
Appalachian Power Co	
John F Amos (F)	195
Kanawha River (F)	196
Mountaineer (1301) (F)	196
Monongahela Power Co	
Fort Martin (F)	196
Harrison (F)	196
Pleasants (F)	107
Ohio Power Co	
Kammer (F)	197
Mitchell (F)	197
Virginia Electric & Power Co	
Mt. Storm (F)	197
West Penn Power Co	
Lake Lynn (H)	96
Wisconsin	
Lake Superior District Pwr Co	
Bay Front (F)	198
Marshfield City of	
Wildwood (F)	198
Northern States Power Co	
Chippewa Falls (H)	96
Cornell (H)	96
Holcombe (H)	97
Jim Falls (H)	97
St. Croix Falls (H)	97
Wissota (H)	97
Wisconsin Electric Power Co	
Commerce (F)	198
Pleasant Prairie (F)	198
Point Beach (N)	243
South Oak Creek (F)	199
Wisconsin Power & Light Co	
Blackhawk (F)	199
Columbia (F)	199
Edgewater (F)	199
Prairie Du Sac (H)	98
Wisconsin Public Service Corp	
Grandfather Falls (H)	98
Kewaunee (N)	243
Wisconsin River Power Co	
Castle Rock (H)	98
Petenwell (H)	98
Wyoming	
Black Hills Power & Light Co	
Osage (F)	200
Pacific Power & Light Co	
Dave Johnston (F)	200
Jim Bridger (F)	200
Wyodak (F)	200
Utah Power & Light Co	
Naughton (F)	201

Note: (F) = Fossil-Fueled Steam, (G) = Gas-Turbine, (H) = Hydroelectric, (N) = Nuclear Steam

Appendix B

Alphabetical List of Hydroelectric Plants

Appendix B

Alphabetical List of Hydroelectric Plants

Name of Plant - State	Page
A G Wishon - California	26
Alder - Washington	92
American Falls - Idaho	46
Amoskeag - New Hampshire	61
Balch No 1 - California	26
Balch No 2 - California	27
Bankhead Dam - Alabama	19
Bartletts Ferry - Georgia	44
Bath County - Virginia	87
Bear Swamp - Massachusetts	53
Belden - California	27
Bellows Falls - Vermont	86
Bennetts Bridge - New York	62
Big Bend - South Dakota	84
Big Creek No 1 - California	39
Big Creek No 2 - California	40
Big Creek No 2A - California	40
Big Creek No 3 - California	40
Big Creek No 4 - California	40
Big Creek No 8 - California	41
Big Quinnesec 61 - Michigan	55
Black Eagle - Montana	57
Blanchard - Minnesota	55
Blenheim-Gilboa - New York	66
Blewett - North Carolina	67
Bliss - Idaho	46
Bonneville Dam - Oregon	78
Boundary - Washington	91
Brownlee - Idaho	46
Brunswick - Maine	51
Bucks Creek - California	27
Bull Run - Oregon	76
Bull Shoals Lake - Arkansas	23
Butt Valley - California	27
C J Strike - Idaho	47
Cabin Creek - Colorado	42
Cabinet Gorge - Idaho	49
Cabot - Massachusetts	53
Calderwood - Tennessee	84
Camino - California	37
Caribou No 1 - California	28
Caribou No 2 - California	28
Carmen Smith - Oregon	73
Carpenter - Arkansas	23
Cascade - Idaho	47
Castaic Power Plant - California	24
Castle Rock - Wisconsin	98
Cedar Creek - South Carolina	81
Cedar Falls - Washington	91
Cheoah - North Carolina	69
Chief Joseph - Washington	94
Chilowee - Tennessee	85
Chippewa Falls - Wisconsin	96
Clayton - Virginia	87
Clearwater No 1 - Oregon	74
Clearwater No 2 - Oregon	74
Cochrane - Montana	57
Coleman - California	26
Colgate - California	42
Colton - New York	63
Columbus - Nebraska	60
Comerford - New Hampshire	61
Conowingo - Maryland	52
Control Gorge Power - California	25
Copco No 1 - California	35
Copco No 2 - California	36
Cornell - Wisconsin	96
Cowans Ford - North Carolina	68
Cresta - California	28
Cushman No 1 - Washington	92
Cushman No 2 - Washington	93
Cutler - Utah	86
Dalles - Oregon	79
Dardanelle - Arkansas	24
Dearborn - South Carolina	81
DeSabla - California	29
Diablo - Washington	91
Dion R Holm - California	39
Don Pedro - California	42
Drop No 4 - California	24
Drum No 1 - California	29
Drum No 2 - California	29
Dutch Flat - California	29
Dworshak - Arkansas	24
E J West - New York	63
Edison Sault - Michigan	54
El Dorado - California	30
Electra - California	30
Electron - Washington	89
Fairfield - South Carolina	82
Falls - North Carolina	70
Faraday - Oregon	77
Fish Creek - Oregon	74
Fishing Creek - South Carolina	81
Five Falls - New York	63
Fond Du Lac - Minnesota	55
Foothill Power Plt. - California	25
Fort Peck - Montana	59
Fort Randall - South Dakota	84
French Meadows - California	36
Garrison - North Dakota	71
Gaston - North Carolina	70
Goat Rock - Georgia	44
Gorge - Washington	92
Grace - Idaho	49
Grahamsville - New York	66
Grandfather Falls - Wisconsin	98
Gulf Island - Maine	51
H. Neely Henry Dam - Alabama	19
Haas - California	30
Hadley Falls - Massachusetts	53
Halsey - California	30
Hardy - Michigan	54
Harriman - Vermont	86
Harris - Maine	51
Harris Dam - Alabama	19
Hauser Lake - Montana	57
Hells Canyon - Oregon	73
Helms - California	31
Hennepin Island - Minnesota	58
High Falls - New York	62
High Rock - North Carolina	70
Holcombe - Wisconsin	97

Alphabetical List of Hydroelectric Plants (Continued)

Name of Plant - State	Page
Holt Dam - Alabama	19
Holter - Montana	57
Holtwood - Pennsylvania	80
Horse Mesa - Arizona	22
Ice Harbor - Washington	94
Iron Gate - California	36
James B Black - California	31
Jaybird - California	37
Jeffery Canyon - Nebraska	60
Jeffries - South Carolina	83
Jim Falls - Wisconsin	97
Jocassee - South Carolina	81
John C Boyle - Oregon	75
John Day - Oregon	79
Jones Fork - California	37
Jordan - Alabama	20
Kentucky - Kentucky	50
Keokuk - Iowa	50
Kerckhoff - California	31
Kerckhoff 2 - California	31
Kern River No 1 - California	41
Kern River No 3 - California	41
Kerr - Montana	58
Kings River - California	32
Kingsley - Nebraska	60
La Grande - Washington	93
Lake Lynn - West Virginia	96
Lay Dam - Alabama	20
Leaburg - Oregon	73
Lemolo No 1 - Oregon	75
Lemolo No 2 - Oregon	75
Lewis Smith Dam - Alabama	20
Libby - Montana	59
Little Falls - Washington	95
Little Goose - Washington	94
Lloyd Shoals - Georgia	44
Lockhart - South Carolina	82
Logan Martin Dam - Alabama	20
Long Lake - Washington	95
Lookout Shoals - North Carolina	68
Loon Lake - California	38
Lower Baker - Washington	89
Lower Granite - Washington	94
Lower Malad - Idaho	47
Lower Monumental - Washington	95
Lower Salmon - Idaho	47
Ludington - Michigan	54
Mammoth Pool - California	41
Markham - Oklahoma	72
Markland - Indiana	50
Marshall Ford - Texas	85
Martin Dam - Alabama	21
Mayfield - Washington	93
McNary - Oregon	79
Mechanicville - New York	62
Merwin - Washington	88
Middle Fork - California	36
Middle Gorge Pwr Plt - California	25
Mitchell Dam - Alabama	21
Moccasin - California	39
Mormon Flat - Arizona	23
Morony - Montana	58
Moses Niagara - New York	66
Moses Power Dam - New York	66
Mossyrock - Washington	93
Mountain Island - North Carolina	68
Muddy Run - Pennsylvania	80
Nantahala - North Carolina	69
Narrows - North Carolina	71
New Narrows - California	42
Newcastle - California	32
Nine Mile - Washington	95
North Fork - Oregon	77
North Highlands - Georgia	44
North Platte Hydro - Nebraska	60
Northfield Mountain - Massachusetts	53
Noxon Rapids - Montana	59
Oahe - South Dakota	84
Oak Grove - Oregon	77
Ohio Falls - Kentucky	50
Oliver Dam - Georgia	45
Oneida - Idaho	49
Osage - Missouri	56

Name of Plant - State	Page
Oxbow - Oregon	74
Oxford - North Carolina	68
Parr Hydro - South Carolina	83
Peavy Falls - Michigan	55
Pelton - Oregon	77
Penencola - Oklahoma	72
Petenwell - Wisconsin	96
Pickwick - Tennessee	85
Piney - Pennsylvania	79
Pit No 1 - California	32
Pit No 3 - California	32
Pit No 4 - California	33
Pit No 5 - California	33
Pit No 6 - California	33
Pit No 7 - California	33
Poe - California	34
Post Falls - Idaho	49
Prairie Du Sac - Wisconsin	96
Priest Rapids - Washington	90
Prospect - New York	63
Prospect No 2 - Oregon	75
Raccoon Mountain - Tennessee	85
Racine - Ohio	71
Rainbow - Montana	58
Rainbow Falls - New York	64
Ralston - California	37
River Mill - Oregon	78
Roanoke Rapids - North Carolina	70
Robbs Peak - California	38
Robert C Kirkwood - California	39
Robert S Kerr - Oklahoma	72
Rochester No 5 - New York	67
Rock Creek - California	34
Rock Island - Washington	90
Rocky Reach - Washington	90
Rocky River - Connecticut	43
Roosevelt - Arizona	23
Ross Dam - Washington	92
Round Butte - Oregon	78
Ryan - Montana	58
S C Moore - New Hampshire	61
Safe Harbor - Pennsylvania	80
Salina - Oklahoma	72
Salt Springs - California	34
Saluda Hydro - South Carolina	83
San Francisquito #2 - California	25
San Francisquito Pwr - California	26
Santeetlah - North Carolina	69
School Street - New York	64
Seneca - Pennsylvania	80
Shepaug - Connecticut	43
Sherman Island - New York	64
Shoshone - Colorado	43
Shoshone Falls - Idaho	48
Sinclair Dam - Georgia	45
Skelton - Maine	51
Slide Creek - Oregon	76
Smith - New Hampshire	61
Smith Mountain - Virginia	87
Snoqualmie - Washington	89
Soda Springs - Oregon	76
South Colton - New York	64
Spier Falls - New York	65
St. Croix Falls - Wisconsin	97
Stanislaus - California	34
Stark - New York	65
Stevens Creek Hydro - South Carolina	83
Stevenson - Connecticut	43
Stewarts Bridge - New York	65
Swan Falls - Idaho	48
Swift No 1 - Washington	88
Swift No 2 - Washington	88
T W Sullivan - Oregon	78
Table Rock - Oklahoma	73
Tallulah Falls - Georgia	45
Taum Sauk - Missouri	56
Thompson Falls - Montana	59
Thomson - Minnesota	56
Thorpe - North Carolina	69
Thurlow Dam - Alabama	21
Tiger Creek - California	35
Tillery - North Carolina	67
Toketee Falls - Oregon	76
Trenton Falls - New York	65
Tuckertown - North Carolina	71
Tugalo - Georgia	45

Alphabetical List of Hydroelectric Plants (Continued)

Name of Plant - State	Page
Twin Falls - Idaho	48
Union Valley - California	38
Upper Baker - Washington	89
Upper Falls - Washington	96
Upper Gorge Pwr Plt - California	26
Upper Salmon Falls - Idaho	48
Vernon - Vermont	86
Victoria - Michigan	54
Wallace Dam - Georgia	46
Walter Bouldin Dam - Alabama	21
Walters - North Carolina	67
Wanapum - Washington	91
Wateree - South Carolina	82
Weiss Dam - Alabama	22
West Point - California	35
Weston - Maine	52
White River - Washington	90
White Rock - California	38
Wilder - Vermont	87
Williams - Maine	52
Wilson - Alabama	22
Wise - California	35
Wissota - Wisconsin	97
Wylie - South Carolina	82
Wyman - Maine	52
Yale - Washington	68
Yards Creek - New Jersey	62
Yates Dam - Alabama	22

Appendix C

Alphabetical List of Fossil-Fueled Steam-Electric Plants

Appendix C

Alphabetical List of Fossil-Fueled Steam-Electric Plants

Name of Plant - State	Page
Abilene - Texas	191
Abilene - Kansas	134
Alamitos - California	112
Albany - New York	160
Allen - Tennessee	179
Allen S King - Minnesota	147
Anclote - Florida	117
Animas - New Mexico	156
Arbuckle - Oklahoma	169
Armstrong - Pennsylvania	176
Arthur Kill - New York	158
Asheville - North Carolina	162
Ashtabula - Ohio	165
Austin - Minnesota	146
Avon - California	110
Avon Lake - Ohio	166
B C Cobb - Michigan	143
B L England - New Jersey	155
Bailly - Indiana	129
Baldwin - Illinois	127
Barney M Davis - Texas	181
Barry - Alabama	106
Baxter Wilson - Mississippi	148
Bay Front - Wisconsin	198
Bay Shore - Ohio	169
Belews Creek - North Carolina	163
Belle River - Michigan	144
Ben French - South Dakota	178
Bergen - New Jersey	155
Big Bend - Florida	121
Big Sandy - Kentucky	135
Big Stone - South Dakota	179
Blackhawk - Wisconsin	199
Bluffs Plant - Nebraska	153
Bowen - Georgia	121
Bowline Point - New York	161
Brandon Shores - Maryland	140
Brayton Point - Massachusetts	142
Bridgeport Harbor - Connecticut	116
Bruce Mansfield - Pennsylvania	174
Brunner Island - Pennsylvania	174
Bull Run - Tennessee	179
C R Huntley - New York	161
C W Burdick - Nebraska	152
Cameo - Colorado	115
Canadys Steam - South Carolina	176
Cane Run - Kentucky	136
Cannon Street - Massachusetts	142
Cape Canaveral - Florida	118
Cayuga - Indiana	130
Cedar Bayou - Texas	182
Centralia - Washington	195
Chalk Point - Maryland	140
Charles Poletti - New York	162
Cherokee - Colorado	115
Chesterfield - Virginia	194
Cheswick - Pennsylvania	171
Cholla - Arizona	107
Cimarron River - Kansas	133
Clay Boswell - Minnesota	146
Cleary Flood - Massachusetts	143
Cliffside - North Carolina	163
Clifty Creek - Indiana	128
Clinch River - Virginia	194
Coffeen - Illinois	124
Coffeyville - Kansas	133
Colbert - Alabama	107
Coleto Creek - Texas	181
Collins - Illinois	125
Colstrip - Montana	152
Columbia - Wisconsin	199
Columbia - Missouri	149
Comanche - Colorado	115
Commerce - Wisconsin	198
Concho - Texas	191
Conemaugh - Pennsylvania	172
Conesville - Ohio	166
Contra Costa - California	110
Cool Water - California	112
Coronado - Arizona	108
Council Bluffs - Iowa	132
Coyote - North Dakota	164
Crawford - Illinois	125
Crist - Florida	120
Cross - South Carolina	178
Crystal River - Florida	117
Cumberland - Tennessee	179
Cunningham Station - New Mexico	157
Dan E Karn - Michigan	143
Danskammer - New York	157
Dave Johnston - Wyoming	200
De Cordova - Texas	187
Dean H Mitchell - Indiana	129
Dickerson - Maryland	141
Dolet Hills - Louisiana	137
Dubuque - Iowa	131
Duck Creek - Illinois	124
Dunkirk - New York	161
E C Gaston - Alabama	106
E D Edwards - Illinois	124
E F Barrett - New York	159
E W Brown - Kentucky	135
East Bend - Ohio	165
East Lake - Ohio	166
Eddystone - Pennsylvania	175
Edge Moor - Delaware	116
Edgewater - Wisconsin	199
El Segundo - California	112
Elmer Smith - Kentucky	136
Elmer W Stout - Indiana	128
Elrama - Pennsylvania	172
Encina - California	111
Etiwanda - California	112
F B Culley - Indiana	131
F J Gannon - Florida	121
Fayette Power Proj - Texas	184
Flint Creek - Arkansas	109
Fort Martin - West Virginia	196
Fort Myers - Florida	118
Fort Phantom - Texas	191
Four Corners - New Mexico	156
G G Allen - North Carolina	164
Gallatin - Tennessee	180
Gen J M Gavin - Ohio	168

Alphabetical List of Fossil—Fueled Steam—Electric Plants (Continued)

Name of Plant - State	Page
George Birdsal - Colorado	114
George Neal - Iowa	132
Gerald Gentleman - Nebraska	153
Ghent - Kentucky	135
Gibson - Indiana	130
Gordon Evans - Kansas	133
Gorgas - Alabama	106
Gorge Steam - Ohio	167
Graham - Texas	188
Graham Station - Maine	139
Greens Bayou - Texas	183
GRDA - Oklahoma	169
Hagood Steam - South Carolina	177
Hale - Utah	193
Hammond - Georgia	122
Handley - Texas	188
Harllee Branch - Georgia	122
Harrington Station - Texas	186
Harrison - West Virginia	196
Hastings Energy Ctr - Nebraska	153
Hatfields Ferry - Pennsylvania	176
Haynes - California	109
Henderson - Mississippi	148
Henderson Stat. One - Kentucky	134
Herbert A Wagner - Maryland	140
Hickling - New York	159
Holtwood - Pennsylvania	174
Homer City - Pennsylvania	172
Horseshoe Lake - Oklahoma	169
Howard Down - New Jersey	156
Hudson - New Jersey	155
Hunlock - Pennsylvania	176
Hunter (Emery) - Utah	193
Huntington - Utah	193
Huntington Beach - California	113
Iatan - Missouri	150
Independence - Arkansas	108
Indian River - Delaware	117
J C Weadock - Michigan	143
J H Campbell - Michigan	144
J M Stuart - Ohio	166
J R Whiting - Michigan	144
J T Deely - Texas	185
Jack McDonough - Georgia	122
Jack Watson - Mississippi	149
James H Miller Jr - Alabama	106
Jeffery Energy Cntr - Kansas	134
Jennison - New York	160
Jim Bridger - Wyoming	200
John E Amos - West Virginia	195
John Sevier - Tennessee	180
Johnsonville - Tennessee	180
Joliet 9 - Illinois	125
Jones Station - Texas	187
Joppa - Illinois	126
Joseph C. McNeil - Vermont	193
Kahe - Hawaii	123
Kahului - Hawaii	123
Kammer - West Virginia	197
Kanawha River - West Virginia	196
Kendall Square - Massachusetts	142
Kettle Falls - Washington	195
Keystone - Pennsylvania	173
Killen Station - Ohio	167
Kingstun - Tennessee	180
Kinkaid - Illinois	125
Kirk - South Dakota	178
Knox Lee - Texas	185
Kyger Creek - Ohio	168
L V Sutton - North Carolina	162
La Cynge - Missouri	150
Labadie - Missouri	151
Lake Hubbard - Texas	188
Lake Pauline - Texas	191
Lawrence - Kansas	134
Lee - North Carolina	162
Lewis & Clark - Montana	152
Lewis Creek - Texas	182
Limestone - Texas	183
Little Gypsy - Louisiana	138
Long Beach - California	113
Lordsburg - New Mexico	157
Louisa - Iowa	133
Magnolia Blvd - California	109
Manatee - Florida	118
Market Street - Louisiana	139
Marshall - North Carolina	164
Martin - Florida	118
Martin Drake - Colorado	114
Martins Creek - Pennsylvania	175
Mayo - North Carolina	163
McMeekin Steam - South Carolina	177
Meramec - Missouri	151
Mercer - New Jersey	156
Merrimack - New Hampshire	154
Miami Fort - Ohio	165
Michigan City - Indiana	129
Michoud - Louisiana	139
Mill Creek - Kentucky	136
Milliken - New York	160
Missouri City - Missouri	150
Mitchell - West Virginia	197
Mohave - Nevada	154
Monroe - Michigan	144
Montour - Pennsylvania	175
Montrose - Missouri	150
Morgan Creek - Texas	188
Morgantown - Maryland	141
Morro Bay - California	110
Moss Landing - California	110
Mountain Creek - Texas	189
Mountaineer (1301) - West Virginia	196
Mt. Storm - West Virginia	197
Muskingum River - Ohio	168
Muskogee - Oklahoma	170
Mustang - Oklahoma	170
Mystic - Massachusetts	141
Natchez - Mississippi	148
Naughton - Wyoming	201
Navajo - Arizona	108
Nebraska City - Nebraska	153
New Boston - Massachusetts	141
New Castle - Pennsylvania	174
New Haven Harbor - Connecticut	116
New Ulm - Minnesota	147
Newman - Texas	181
Newton - Illinois	124
Nichols Station - Texas	187
Nine Mile Point - Louisiana	138
North Lake - Texas	189
North Main - Texas	189
Northeast Station - Minnesota	146
Northeastern - Oklahoma	171
Northport - New York	159
Norwalk Harbor - Connecticut	116
Nueces Bay - Texas	181
O W Sommers - Texas	185
Oak Creek - Texas	192
Oklaunion - Texas	192
Oleum Steam - California	111
Ormand Beach - California	113
Osage - Wyoming	200
Oswego - New York	161
Ottawa Street - Michigan	145
Ottumwa - Iowa	132
Owatonna - Minnesota	147
P H Robinson - Texas	183
P L Bartow - Florida	117
Paradise - Kentucky	136
Pawnee - Colorado	115
Permian Basin - Texas	189
Perry K - Indiana	128
Petersburg - Indiana	128
Pineville - Kentucky	135
Pirkey - Texas	186
Pittsburg - California	111
Plant No 2 - Texas	185
Pleasant Prairie - Wisconsin	198
Pleasants - West Virginia	197
Port Everglades - Florida	119
Port Jefferson - New York	159
Portland - Pennsylvania	172
Portsmouth - Virginia	194
Possum Point - Virginia	195
Potomac River - Virginia	194
Power Lane - Texas	182
Powerton - Illinois	126
Presque Isle - Michigan	146
Pueblo - Colorado	114
Putnam - Florida	119

Alphabetical List of Fossil—Fueled Steam—Electric Plants (Continued)

Name of Plant - State	Page
R E Burger - Ohio	167
R Gallagher - Indiana	130
R M Schahfer - Indiana	129
R S Nelson - Louisiana	138
Ravenswood - New York	158
Rawhide - Colorado	114
Redondo Beach - California	113
Reid Gardner - Nevada	154
Rex Brown - Mississippi	149
Rio Pecos - Texas	192
River Rouge - Michigan	145
Riverbend - North Carolina	164
Riverside - Oklahoma	171
Riviera - Florida	119
Rockport (2601) - Indiana	127
Rodemacher - Louisiana	137
Roseton - New York	158
Roxboro - North Carolina	163
Rush Island - Missouri	151
S A Carlson - New York	158
Sabine - Texas	182
Salem Harbor - Massachusetts	142
Sam Barton - Texas	183
San Angelo - Texas	192
San Juan - New Mexico	157
San Tan - Arizona	108
Sandow - Texas	190
Sanford - Florida	119
Scholtz - Florida	120
Seminole - Oklahoma	170
Shawnee - Kentucky	137
Shawville - Pennsylvania	173
Sherburne County - Minnesota	147
Shiras - Michigan	145
Sibley - Missouri	151
Silver Lake - Minnesota	148
Sioux - Missouri	152
Sixth Street - Iowa	132
Smith - Florida	120
Somerset - New York	160
Sooner - Oklahoma	170
South Bay - California	111
South Oak Creek - Wisconsin	199
Springerville - Arizona	107
Stanton Energy - Florida	121
State Line - Indiana	127
Streeter Station - Iowa	131
Stryker Creek - Texas	190
Sunbury - Pennsylvania	175
Sunrise - Nevada	154
T H Wharton - Texas	184
Tanners Creek - Indiana	127
Teche - Louisiana	137
Tolk Station - Texas	187
Tradinghouse - Texas	190
Trenton Channel - Michigan	145
Turkey Point - Florida	120
Urquhart Steam - South Carolina	177
Valley - Texas	190
Victor J Daniel Jr - Mississippi	149
Vine Street - Ohio	168
W A Parish - Texas	184
W H Hill - Hawaii	123
W H Sammis - Ohio	167
Wabash River - Indiana	130
Walter C Beckjord - Ohio	165
Walter F Wyman - Maine	140
Wansley - Georgia	122
Warren - Pennsylvania	173
Wateree Steam - South Carolina	177
Waterford - Louisiana	139
Waukegan - Illinois	126
Webster - Texas	184
Welsh - Texas	186
Werner - New Jersey	155
Weyco Energy Ctr - Oregon	171
White Bluff - Arkansas	109
Whitewater Valley - Indiana	131
Widows Creek - Alabama	107
Wildwood - Wisconsin	198
Wilkes - Texas	186
Will County - Illinois	126
Williamsburg - Pennsylvania	173
Willow Glen - Louisiana	138
Winyah - South Carolina	178
Wyodak - Wyoming	200
Yates - Georgia	123

Appendix D

Alphabetical List of Gas-Turbine Electric Plants

Appendix D

Alphabetical List of Gas-Turbine Electric Plants

Name of Plant - State	Page
Anchorage No 1 - Alaska	207
Astoria - New York	216
Big Bend - Florida	211
Blossburg - Pennsylvania	218
Burlington - New Jersey	215
Calumet - Illinois	211
Celanese - Texas	220
Clark - Nevada	214
Crawford - Illinois	212
Croydon - Pennsylvania	219
Debary - Florida	210
E F Barrett - New York	217
Edison - New Jersey	215
Electric Junction - Illinois	212
Essex - New Jersey	216
Fort Myers - Florida	211
Fredonia - Washington	221
George M Sullivan - Alaska	207
Gowanus - New York	217
Grayson - California	208
Greens Bayou - Texas	219
Hancock - Michigan	213
Holtsville - New York	218
Intercession City - Florida	[illegible]
Joliet 9 - Illinois	212
Kearny - New Jersey	216
La Palma - Texas	219
Lauderdale - Florida	211
Linden - New Jersey	216
Little Mountain - Utah	220
McPherson No 2 - Kansas	213
Mickleton - New Jersey	214
Morgantown - Maryland	213
Narrows - New York	217
Naval Station - California	209
Naval Training Cnt - California	209
North Island - California	209
Northeast - Michigan	214
Oakland - California	208
Occtillo - Arizona	207
Phoenix - Arizona	207
Portsmouth - Virginia	220
Potrero - California	209
R M Schahfer - Indiana	212
Ravenswood - New York	217
Richmond - Pennsylvania	219
Riegel - New Jersey	215
Rochester No 9 - New York	218
Saguaro - Arizona	208
Sayreville - New Jersey	215
Standard Oil - Mississippi	214
Suwannee River - Florida	210
T H Wharton - Texas	220
Thetford - Michigan	213
Walnut - California	210
Warren - Pennsylvania	218
Yucca - Arizona	208

Appendix E

Alphabetical List of Nuclear Steam-Electric Plants

Appendix E

Alphabetical List of Nuclear Steam- Electric Plants

Name of Plant - State	Page
Arkansas Nuclear One - Arkansas	227
Beaver Valley - Pennsylvania	239
Big Rock Point - Michigan	234
Browns Ferry - Alabama	227
Brunswick - North Carolina	238
Byron - Illinois	230
Callaway - Missouri	235
Calvert Cliffs - Maryland	233
Catawba - South Carolina	241
Clinton - Illinois	232
Cooper Nuclear Sta. - Nebraska	236
Crystal River - Florida	229
Davis-Besse - Ohio	239
Diablo Canyon - California	228
Donald C Cook - Michigan	234
Dresden - Illinois	231
Duane Arnold - Iowa	232
Edwin I Hatch - Georgia	230
Fort Calhoun - Nebraska	236
Fort St. Vrain - Colorado	228
Ginna - New York	238
Grand Gulf - Mississippi	235
H B Robinson - South Carolina	241
Haddam - Connecticut	229
Harris - North Carolina	238
Hope Creek - New Jersey	236
Indian Point - New York	237
Indian Point #3 - New York	237
James A Fitzpatrick - New York	238
Joseph M Farley - Alabama	227
Kewaunee - Wisconsin	243
La Salle - Illinois	231
Limerick - Pennsylvania	240
Maine Yankee - Maine	233
McGuire - South Carolina	241
Millstone - Connecticut	229
Monticello - Minnesota	235
Nine Mile Point - New York	237
North Anna - Virginia	242
Nuc Pwr Sta - Massachusetts	234
Oconee - South Carolina	241
Oyster Creek - New Jersey	236
Palisades - Michigan	234
Palo Verde - Arizona	227
Peach Bottom - Pennsylvania	240
Perry - Ohio	239
Pilgrim - Massachusetts	233
Point Beach - Wisconsin	243
Prairie Island - Minnesota	235
Quad Cities - Illinois	231
Rancho Seco - California	228
River Bend - Louisiana	232
Salem - New Jersey	237
San Onofre - California	228
Sequoyah - Tennessee	242
St. Lucie - Florida	229
Surry - Virginia	243
Susquehanna - Pennsylvania	240
Three Mile Island - Pennsylvania	240
Trojan - Oregon	239
Turkey Point - Florida	230
V C Summer - South Carolina	242
Vermont Yankee - Vermont	242
Vogtle - Georgia	230
Waterford 3 - Louisiana	233
Wolf Creek - Kansas	232
Zion - Illinois	231

Appendix F

Technical Notes

Appendix F

Technical Notes

The Office of Coal, Nuclear, Electric and Alternate Fuels (CNEAF) is responsible for routine data improvement and quality assurance activities. All operations of CNEAF are done in accordance with formal standards established by the Energy Information Administration. The items for "Historical Plant Costs" and "Power Production Expenses" represent accounts in the FERC Uniform System of Accounts. Definitions of items listed under "Historical Plant Costs" and "Power Production Expenses" in the tables of plant-level data are included in the Glossary. The Uniform System of Accounts is contained in Title 18 of the Code of Federal Regulations. Both the Code of Federal Regulations and a separate copy of the Uniform System of Accounts Prescribe for Electric Utilities are available from :

Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402

Order Desk (202) 783-3238

1. Sources of Data

A synopsis of the data collection systems used to prepare this report is presented below.

Federal Energy Regulatory Commission (FERC) Form 1 - Annual Report of Major Electric Utilities, Licensees and Others

The FERC Form 1, "Annual Report of Major Electric Utilities, Licensees and Others," is used annually to collect detailed accounting, financial, and operating data from "Major" privately owned electric utilities having, in each of the last 3 consecutive years, sales or transmission service that exceeds any one or more of the following: (1) One million megawatthours of total sales, (2) 100 megawatthours of sales for resale, (3) 500 megawatthours of gross interchange out, (4) 500 megawatthours of wheeling for others (deliveries plus losses). For the year ending in 1987, there were 183 major electric utilities.

Instrument and Design History

The Federal Power Commission's (FPC) Form 1, the predecessor of FERC Form 1, was implemented in 1935 by the FPC. In October 1977, the collection and processing of data on the form became the responsibility of the EIA when the FPC was merged into the DOE. This mandatory report is prepared in accordance with the FERC Uniform System of Accounts for Private Utilities and Licensees.

Data Processing

The completed forms are due to EIA on or before April 30, containing data for the preceding calendar year. Manual editing of the reported data is completed prior to data entry. Additional edit checks of the data are performed through computer programs. The program edits include both deterministic checks, in which records are checked for the presence of data in required fields, and statistical checks, in which the data are checked against a range of values based on historical data values and for logical or mathematical consistency with data elements reported in the form. Discrepancies in the data, arising as a result of these checks, are resolved either by the processing office or by further information obtained from a telephone call to the company concerned.

Information Collected

Data reported on FERC Form 1 include the following: income and earnings, taxes, depreciation and amortization, distribution of salaries and wages, electric operating revenues, electric maintenance expenses, generating plant statistics. Planned construction data, year-end balance sheets, and general corporate information are also included. Respondents are required to report detailed "Historical Plant Cost" and "Power Production Expenses" data such as that contained in *Historical Plant Cost and Annual Production Expenses for Selected Electric Plants* for each of their hydroelectric plants with an installed capacity of 10 megawatts or greater, each steam-electric plant with an installed capacity of 25 megawatts or greater, each gas-turbine plant with an installed capacity of 10 megawatts or greater and each nuclear plant. For other plants, less detailed data are required to be reported.

Form EIA-412 - "Annual Report of Public Electric Utilities"

The Form EIA-412, "Annual Report of Public Electric Utilities," is used annually to collect detailed accounting, financial, and operating data from public electric utilities in the United States and its possessions. For the fiscal or calendar year which ended December 1986, new criteria were used to select the respondents for this form resulting in 485 public electric utilities reporting. Those publicly owned electric utilities engaged in the generation, transmission, or distribution of electricity which had 100,000 megawatthours of sales to ultimate consumers and/or 100,000 megawatthours of sales for resale must submit the Form EIA-412.

Instrument and Design History

The FPC Form 1M, a predecessor form of Form EIA-412, was implemented by the FPC in 1961. The collection of data on this form became the responsibility of the EIA in October 1977, when the FPC was merged into the DOE. Effective January 1980, the form was superseded by the Form EIA-412. The Form EIA-412 is mandatory under the Federal Energy Administration (FEA) Act of 1974.

Data Processing

Data submitted on this form are based on the respondent's fiscal year and due in DOE on or before the last day of the third month following the close of the fiscal year. Manual editing and computerized system edit checks are the same as for FERC Form 1. (See FERC Form 1 - Annual Report of Major Electric Utilities, Licensees and Others)

Information Collected

Data reported on Form EIA-412 are similar to the data reported on the FERC Form 1, but the Form 412 is a subset of the Form 1.

Form EIA-759 - "Monthly Power Plant Report"

The Form EIA-759, "Monthly Power Plant Report," collects monthly data from all electric utilities on net generation, consumption of coal, petroleum, and natural gas, and end-of-the-month stocks of coal and petroleum for each plant by prime mover, by fuel type combination. The Form EIA-759 replaced the FPC Form 4 in January 1982.

Instrument and Design History

The Bureau of the Census collected and published the results of the 5-year census from 1902 to 1937 on the electric light and power industries and some data on industrial production of electric energy.

For the years 1920 to 1936, the Geological Survey collected, compiled, and published data on capacity and generation of electric utilities. The Federal Power Act, Sections 311 and 312, and FPC Order 141, define the legislative authority to collect power production data. In 1936, this activity was turned over to the FPC, which implemented the FPC Form 4 system.

In October 1977, processing of data reported on this form became the responsibility of the EIA when the FPC was merged into the DOE.

Data Processing

Processing of the data on Form EIA-759 is the responsibility of the Data Systems Branch, Electric Power Division, Office of CNEAF.

Approximately 4 working days before the end of the month, the preprinted forms are mailed to respondents along with a return envelope. The due date for the completed forms is the 10th of the month following the reporting month. The staff manually edits and compares the completed forms with the mailing list, checking for changes of address. Respondents are telephoned for correction or clarification of any apparently unusual data. When 100 percent of total U. S. electric utility installed nameplate capacity is represented by the reported data, tables and text are generated for various publications. The data are subsequently made available for public use in custom computer runs, data tapes, or in the publications themselves on a cost-recovery basis.

Data from the Form EIA-759 are summarized in the publications, *Electric Power Monthly, Electric Power Annual, Monthly Energy Review, Annual Energy Review, Electric Power Quarterly,* and *Historical Plant Cost and Annual Production Expenses for Selected Electric Plants.* These reports present aggregate totals for electric utilities by the Nation, the North American Electric Reliability Council regions, and the Census regions.

Information Collected

The data items supplied each month by utility respondents are:

1. monthly net generation by prime mover - hydroelectric, steam, internal combustion, gas turbine, combined cycle (steam), combined cycle (gas turbine), and windmill;
2. monthly net generation by fuel type - water, wood, waste, nuclear, light oil (first collected in 1980), heavy oil (1980), anthracite, coke, bituminous, lignite, fuel oil (prior to 1980), and natural gas;

In addition, electric utilities operating fossil-fueled plants must report:

1. monthly fuel consumption - light oil (1980), heavy oil (1980), fuel oil (prior to 1980), anthracite, coke, bituminous, lignite,and natural gas;
2. end-of-month on-site fuel stocks - light oil (1980), heavy oil (1980), fuel oil (prior to 1980), anthracite, coke, bituminous,and lignite.

Form EIA-860 - "Annual Electric Generator Report"

The EIA annually collects data on existing power plants of electric utilities. This data collection includes the 10-year plans of utilities for constructing new plants and generating unit additions, modifications, and retirements in existing plants. Data on Form EIA-860, "Annual Electric Generator Report," are collected from all electric utilities in the United States and Puerto Rico that operate power plants or plan to operate a power plant within 10 years of the reporting year.

Instrument and Design History

The Form EIA-860 was implemented in January 1985 to collect data as of year-end 1984. The FEA Act of 1974 (Public Law 93-275) defines the legislative authority to collect these data.

Data Processing

Data on Form EIA-860 are submitted through mail by approximately 900 respondents. The forms are mailed to the respondents in December to collect data as of the end of the preceding calendar year. The completed forms are due at the EIA on February 15. Data for each respondent are preprinted from the applicable data base. Respondents are instructed to verify all preprinted data and to supply missing data.

Processing of the data on Form EIA-860 is the responsibility of the Data Systems Branch, Electric Power Division, Office of CNEAF. The system that is used to process data reported on Form EIA-860 was designed by this office. The data are manually edited before being reduced for automatic data processing and subsequently processed through computerized editing checks. As a result of the manual and automated editing process, respondents are telephoned to correct and clarify reported data or to obtain missing data.

Information Collected

The data items supplied annually by the respondents are:

1. Respondent's mailing address; name and telephone number of contact person; name and title of certifying official.
2. For each existing power plant and those planned for initial commercial operation within 10 years, the following are specified: plant name; county location; State location; elevation; name of cooling water source or source of water for hydroelectric power; and type of cooling.
3. Specifically, for each existing hydroelectric power plant or those hydroelectric power plants scheduled for initial commercial operation within 10 years, the following are specified: hydroelectric project name; area of pools; drainage area; for normal full upper pool - maximum drawdown, usable storage, elevation; gross head; design head; kind of plant.
4. For each existing generator (active and inactive), the following are specified: plant name; generator identification; prime mover; nameplate rating; service type; date of initial commercial operation; start-up fuels; heat rate; summer capability; winter capability.
5. For each generator scheduled for initial commercial operation within 10 years, the following are specified: plant name, generator identification, prime mover, nameplate rating, dates scheduled for initial commercial operation, reasons for delays, proposed energy sources, and proposed summer and winter ratings.

6. Previously reported proposed generators that have been canceled during the reporting year are reported, along with date of cancellation, and reasons for cancellation.
7. Proposed generators that have been indefinitely postponed are reported, along with the date the decision was made to postpone, and the reasons for postponement.
8. Generators that have been retired during the reporting year are reported and their date of retirement is given.
9. Information is also reported for existing generators that, within the next 10 years, will be retired, will convert to another energy source, or will be modified to change summer or winter capability by 10 megawatts or more.
10. For existing and planned generators that are or will be jointly owned, or for any generator that the respondent operates, but is 100 percent owned by another company, the following are reported: plant name, generator identification, prime mover, each owner's name, and percent ownership.
11. For each coal-fired generator expected to start commercial operation within 10 years, various planned and actual milestone dates are reported.

2. Procedure Used to Select Plants

The initial selection of plants for *Historical Plant Cost and Annual Production Expenses for Selected Electric Plants* was chosen in 1982. For the years 1983 through 1987, modifications to the 1982 selection were made each year based on adding new plants coming "on line" and deleting operating plants being retired or deactivated that year. The initial selection of plants is maintained to ensure comparability of individual plant data and the availability of a system for tracking individual plants.

The procedure used in 1982 to select the initial plants for inclusion in *Historical Plant Cost and Annual Production Expenses for Selected Electric Plants* is as follows: First, since the number of pumped-storage hydroelectric plants and the number of nuclear steam-electric plants in operation was small in comparison to the number of conventional hydroelectric plants and the number of nonnuclear thermal-electric plants, respectively, all pumped-storage plants and all nuclear plants for which data were collected on FERC Form 1 and EIA Form 412 were included. Second, for non-Federal conventional hydroelectric, fossil-fueled steam-electric, and gas-turbine electric plant categories, all electric utility plants in the United States were arrayed in order of net generation from largest to smallest (as reported on Form EIA-759). The top non-Federal conventional hydroelectric and the top fossil-fueled steam-electric plants whose total generation comprised 80 percent of the net generation by all plants of their respective categories were selected. The top gas-turbine plants whose total generation comprised 70 percent of the net generation by all gas-turbine electric plants were also selected.

Finally, any plants selected from the respective arrays, for which comprehensive data were not provided on either FERC Form 1 or Form EIA-412, were deleted from the selection without replacement. As a result, coverage within the non-Federal conventional hydroelectric and fossil-fueled steam-electric plant categories approached but did not equal 80 percent of their respective categories. Coverage within the gas-turbine plant category approached but did not equal 70 percent of gas-turbine electric generation from gas-turbine plants. The approximate 80- and 70-percent cutoffs were chosen because around these points, plant net generation drops off greatly, thereby requiring a large number of plants to obtain only a small additional percentage of the total generation.

Thus, plants that started operation prior to the reporting year and whose net generation rank fell below the respective boundaries, either because of their capacity or because of their availability in the reporting year, are excluded. An exception to this was made for fossil-fuel steam-electric plants, to provide the reader with information about the characteristics of smaller plants.

An additional 81 fossil-fueled steam-electric plants, selected from a total of 182 plants with a capacity range of 25 to 100 megawatts, based on data availability, are included to provide information on the operating characteristics of smaller plants because they are frequently used by utilities in some phases of their operations. The 1982 net generation from these 81 small plants represented 0.4 percent of the total fossil-fueled steam-electric generation and 34.1 percent of the net generation from plants whose capacity ranged from 25 to 100 megawatts.

In addition to these fossil-fueled steam-electric plants, 9 steam plants that operate in combined-cycle were added to the selection. The combined-cycle steam plants are included since the gas-turbine component of the plant met the criteria of the selection for the gas-turbine plant category. They are included in fossil-fuel steam because data for the gas-turbine component of these combine-cycle plants cannot be reported separately and are included with the related fossil steam data.

In every year since 1982, all plants coming "on line" that year for which data were reported on FERC Form 1 or Form EIA-412 have been added to the selection, and all plants being retired or deactivated that year have been deleted from the selection. No plants that existed in 1982 but were not included in the selection that year have been added subsequently regardless of their net generation in later years.

2.1 Formulae

Certain data from Form EIA-412 and FERC Form 1 are submitted at the plant level. These data are used in the following formulae to produce averages by type of plant. For these formulae, let Σ represent the summation of all plants filing the Form EIA-412 or FERC Form 1.

Weighted Average Capacity Factor

$$\text{Average Capacity Factor} = \frac{\sum_i Gen_i}{TF \times \sum_i Cap_i}$$

where

i denotes a plant
Gen_i denotes generation in megawatthours for plant i
TF denotes the time factor and equals 8,760 hours, the number of hours in a year
Cap_i denotes net summer capability in megawatts.

Weighted Average Cost for Operation, Maintenance, or Fuel Costs

$$\text{Average Cost} = \frac{\sum_i C_i Gen_i}{\sum_i Gen_i}$$

where

C_i denotes expenses per kilowatthour for plant i
Gen_i denotes generation for plant i in kWh

Weighted Average Heat Rate

$$\text{Average Heat Rate} = \frac{\sum_i Btu_i Gen_i}{\sum_i Gen_i}$$

where

Btu_i denotes Btu consumed per kilowatthour of generation for plant i
Gen_i denotes generation for plant i in kWh.

3. Quality of Data

3.1. Data Editing System

The edit systems are automated to edit data from the form surveys on an annual basis. The edit includes deterministic checks, in which records are checked for the presence of required fields and their validity. When all data have passed the edit process, the system builds an annual master file. This master file is used as input to the system for this publication.

3.2. Data Consistency

Plant cost per kilowatt of installed capacity is based on maximum generator nameplate capacity and total accumulated cost of plant reported on the FERC Form 1, "Annual Report of Major Electric Utilities, Licensees and Others," and on the Form EIA- 412, "Annual Report of Public Electric Utilities."

3.3. Data Base Policy

The data are preliminary (that is, they could change during the publication cycle) until the *Historical Plant Cost and Annual Production Expenses for Selected Electric Plants* is cleared by the Director, Office of CNEAF. Clearance of the publication finalizes these data.

3.4. Confidentiality of the Data

The data collected on the forms used for input to this report are not confidential.

4. Use of the Glossary

The terms in the glossary have been defined for general use. Restrictions in the definitions, as used in this data collection, are also included in the definition.

5. Obtaining Copies of Data

The *Historical Plant Cost and Annual Production Expenses for Selected Electric Plants,* data are available for public use in computer listings, by submitting a written request with a check for $25 (payable to the U.S. Treasury) to:

Energy Information Administration
Electric Power Division, EI-541
Forrestal Building, Room 2F-049
Washington, DC 20585

These data are also available on machine-readable tapes. Tapes may be purchased by using Visa, Mastercard, or American Express Cards, money orders or checks, payable to the National Technical Information Service (NTIS). Purchasers may also use NTIS and Government Printing Office depository accounts. Single issues on tape sell for $175 each plus a $3 handling charge, while subscriptions for a title sell for $175 per tape. To place an order, contact:

National Technical Information Services
Office of Data Base Services
U.S. Department of Commerce
5285 Port Royal Road
Springfield, Virginia 22161
(703) 487-4650

Glossary

best copy available

Glossary

Accounting System: A system of recording accounting data for a utility or company; or of supplying accounting information for controlling, evaluation, planning and decision-making.

Acre-foot: The volume of water that will cover an area of 1 acre to a depth of 1 foot.

Administrative and General Expenses: Expenses of an electric utility relating to the overall directions of its corporate offices and administrative affairs, as contrasted with expenses incurred for specialized functions. Examples include office salaries, office supplies, advertising, and other general expenses. (See Accounting System.)

Adverse Water Conditions: Reduced streamflow, lack of rain in the drainage basin, low water supply behind a pondage or reservoir dam resulting in a reduced gross head that limits the production of hydroelectric power or forces restrictions to be placed on multipurpose reservoirs or other water uses. (See Dam, Gross Head, Hydroelectric Power, Streamflow.) from interest charges. On the Sources and Uses of Funds Statement,

Allowance for Funds Used During Construction (AFUDC): A noncash item representing the estimated composite interest costs of debt and a return on equity funds used to finance construction. The allowance is capitalized in the property accounts and included in income.

Amortization: The gradual write-off of an amount recorded in an account over a predetermined period, such as the remaining life of a particular asset or liability. Or the write-off may occur over a period during which the utility has anticipated a related benefit or is going to recognize an obligation. (See Accounting System.)

Anthracite: Anthracite, or hard coal, is the highest rank of economically useable coal. It is jet black with a high luster. The moisture content generally is less than 15 percent. Anthracite contains approximately 22 to 28 million Btu per ton as received and averages about 25 million Btu per ton. Its ignition temperature is approximately 925 to 970 degrees Fahrenheit. Virtually all of the anthracite mined is from northeastern Pennsylvania. It is used mostly for space heating and generating electricity.

Average Water Conditions: The amount and distribution of precipitation within a drainage basin, and the run-off conditions present, as determined by reviewing the area water supply records over a long period of time. (See Streamflow.)

Bcf: The abbreviation for one billion cubic feet.

Barrel: A volumetric unit of measure for crude oil and petroleum products equivalent to 42 U.S. gallons.

Baseload: The minimum amount of electric power delivered or required over a given period of time at a steady state. (See Baseload Plant.)

Baseload Capacity: The generating equipment normally operated to serve loads on a round-the-clock basis. (See Baseload, Baseload Plant.)

Baseload Plant: A plant, usually housing high-efficiency steam-electric units, which is normally operated to take all or part of the minimum load of a system, and which consequently produces electricity at an essentially constant rate and runs continuously. These units are operated to maximize system mechanical and thermal efficiency and minimize system operating costs. (See Baseload.)

Bituminous Coal: Bituminous coal, or soft coal, is the most common coal. It is dense, black, often with welldefined bands of bright and dull material. Its moisture content usually is less than 20 percent. The heating value ranges from 19 to 30 million Btu per ton as received and averages about 24 million Btu per ton. The ignition temperature ranges from about 700 to almost 900 degrees Fahrenheit. Bituminous coal is mined chiefly in the Appalachian and Interior coal fields. It is used for generating electricity, making coke, and space heating.

Btu (British Thermal Unit): A standard unit for measuring the quantity of heat energy equal to the quantity of heat required to raise the temperature of 1 pound of water by 1 degree Fahrenheit.

Btu Content of Fuel (Average): The average heat value per unit quantity of fuel expressed in Btu as determined from tests of fuel samples or defined by contract specifications. (Example: Btu per pound of coal, Btu per gallon of oil, and Btu per cubic foot of gas.)

Capability: The maximum load that a generating unit, generating station, or other electrical apparatus can carry under specified conditions for a given period of time without exceeding approved limits of temperature and stress.

Capacity: The amount of electric power delivered or required for which a generator, turbine, transformer, transmission circuit, station, or system is rated by the manufacturer. (See Installed Nameplate Capacity.)

Capacity Factor: The ratio of the average demand on a generating unit, for the period of time considered, to the capacity rating of the unit.

Cfs: Cubic feet per second.

Coal: A black or brownish-black solid combustible substance formed by the partial decomposition of vegetable matter without access to air. The rank of coal, which includes anthracite, bituminous coal, subbituminous coal, and lignite, is based on fixed carbon, volatile matter, and heating value. Coal rank indicates the progressive alteration, or coalification, from lignite to anthracite. Lignite contains approximately 9 to 17 million Btu per ton. The contents of subbituminous and bituminous coal range from 16 to 24 million Btu per ton and from 19 to 30 million Btu per ton, respectively. Anthracite contains approximately 22 to 28 million Btu per ton.

Code of Federal Regulations: A compilation of the general and permanent rules of the executive departments and agencies of the Federal Government as published in the Federal Register. The Code is divided into 50 titles which represent broad areas subject to Federal regulation. Title 18 contains the FERC's regulations.

Combined Pumped-Storage Plant: A pumped-storage hydroelectric power plant that uses both pumped water and natural streamflow to produce electricity.

Construction Costs (of the electric power industry): All direct and indirect costs incurred in acquiring and constructing electric utility plant and equipment and proportionate shares of common utility plant. Included are the cost of land and improvements, nuclear fuel and spare parts, allowance for funds used during construction, general overheads capitalized; less the cost of acquiring plant and equipment previously operated in utility service.

Construction Expenditures (of the electric power industry): The gross expenditures for construction costs, including the cost of replacing worn-out plants, and electric construction costs and land held for future use.

Construction Work In Progress (CWIP): The balance shown on a utility's balance sheet for construction work not yet completed but in progress. This balance line item may or may not be included in the rate base. (See Rate Base.)

Consumption (Fuel): The amount of fuel used for gross generation, providing standby service and start-up and/or flame stabilization. (See Fuel.)

Conventional Hydroelectric Plant: A plant in which all of the power is produced from natural streamflow as regulated by available storage.

Cost: The amount paid to acquire resources such as plant and equipment, fuel, or labor services. Fixed costs in the electric utility industry are associated with resources that cannot be changed easily during a short time span (such as plant and equipment) and are independent of the level of generation. Variable costs are associated with resources that can vary during a given time period (such as fuel or labor services) and are directly related to the level of generation.

Cost (Cents per Million Btu): The value of the fuel is measured by computing the cents per million Btu of the fuel to be consumed. The fuel is then purchased on the basis of its heat content. The calculation is done by taking the total cost of fuel and dividing it by the fuel's Btu content; the quotient is then multiplied by 1 million.

Cost (Dollars per Bbl): The monetary amount paid for the good acquired, quoted in dollars per unit barrel.

Cost (Dollars per Mcf): The monetary amount paid for the good acquired, quoted in dollars per thousand cubic feet.

Cost (Dollars per Ton): The monetary amount paid for the good acquired, quoted in dollars per unit ton.

Cost (Fuel): The monetary amount or the value of consideration-in-kind in goods and services given by the buyer to the seller to acquire fuel.

Dam: A physical barrier constructed across a river or waterway to control the flow of or raise the level or water. The purpose of construction may be for flood control, irrigation needs, hydroelectric power production, and/or recreation usage. (See Hydroelectric Power, Waterway.)

Deferred Cost: An expenditure not recognized as a cost of operation of the period in which incurred, but carried forward to be written off in future periods. (See Accounting System, Cost.)

Deferred Fuel Costs: An expenditure for fuel that is not recognized for bookkeeping practices as a cost in the operating period incurred, but carried forward to be written off in future periods. (See Accounting System.)

Demand: The rate at which electric energy is delivered to or by a system, part of a system, or piece of equipment, at a given instant or averaged over any designated period of time.

Demand Interval: The time period during which flow of electricity is usually in 15-, 30-, or 60-minute increments. (See Demand.)

Depreciation: Charges made against income for distributing the cost of depreciable plant, so as to allocate it equitably across the period in which services are obtained from the use of facilities. Among the factors considered are wear and tear, requirements of public authorities, obsolescence, and changes in demand.

Design Head: The achieved river, pondage, or reservoir surface height (forebay elevation) that provides the water level to produce the full flow at the gate of the turbine in order to attain the manufacturer's installed nameplate rating for generation capacity. (See Head, Hydroelectric Plant, Turbine.)

Docket: A formal record of a Federal Energy Regulatory Commission proceeding. These records are available for inspection and copying by the public. Each individual case proceeding is identified by an assigned number. (See FERC.)

Drainage Basin: The land drained by a river system. (See Water Conditions.)

Drawdown: The lowering of the water level of a reservoir as a result of withdrawing water. (See Hydroelectric Power.)

Electric Expenses: The cost of labor, material, and expenses incurred in operating a facility's prime movers, generators, auxiliary apparatus, switching gear, and other electric equipment for each of the points where electricity enters the transmission or distribution grid.

Electric Operating Expenses: Summation of electric operation- related expenses such as operation expenses, maintenance expenses, depreciation expenses, amortization, taxes other than income taxes, Federal income taxes, other income taxes, provision for deferred income taxes, provision for deferred income--credit, investment tax credit adjustment.

Electric Plant: A station containing prime movers, electric generators, and auxiliary equipment for converting mechanical, chemical, and/or fission energy into electric energy.

Electric Power Industry: The public, private, and cooperative electric utility systems of the United States taken as a whole. This includes all electric systems serving the public: regulated investor-owned electric utility companies; Federal power projects; State, municipal, and other government-owned systems, including electric public utility districts; electric cooperatives, including generation and transmission entities ("G and T's"); jointly owned electric utility facilities, and electric utility facilities owned by a lessor and leased to an electric utility. Excluded from this list are the special purpose electric facilities or systems that do not offer service to the public.

Electric Utility: A corporation, person, agency, authority, or other legal entity or instrumentality that owns and/or operates facilities within the United States, its territories, or Puerto Rico for the generation, transmission, distribution, or sale of electric energy, primarily for use by the public. An entity that solely operates qualifying facilities under the Public Utility Regulatory Policies Act of 1978 is not considered an electric utility.

Embedded Cost: The average accounting costs for generating a kilowatt of electricity. The embedded costs are typically "fully distributed." A projected embedded cost study reflects historical capacity valued in historical dollars.

Energy: The capacity for doing work as measured by the capability of doing work (potential energy) or the conversion of this capability to motion (kinetic energy). Energy has several forms, some of which are easily convertible and can be changed to another form useful for work. Most of the world's convertible energy comes from fossil fuels that are burned to produce heat that is then used as a transfer medium to mechanical or other means in order to accomplish tasks. Electrical energy is usually measured in kilowatthours, while heat energy is usually measured in British thermal units. (See Energy Source.)

Energy Source: The primary source that provides the power that is converted to electricity through chemical, mechanical, or other means. Energy sources include coal, petroleum and petroleum products, gas, water, uranium, wind, sunlight, geothermal, and other sources.

FERC: The Federal Energy Regulatory Commission.

Fixed Charge Coverage: The ratio of earnings available to pay so-called fixed charges to such fixed charges. Fixed charges include interest on funded debt, including leases, plus the related amortization of debt discount, premium and expense. Earnings available for fixed charges may be computed before or after deducting income taxes. Occasionally credits for the "allowance for funds used during construction" are excluded from the earnings figures. The precise procedures followed in calculating fixed charge or interest coverages vary widely. (See Allowance For Funds Used During Construction.)

Fixed Costs: Costs associated with capital investment such as equipment, overhead, and property taxes.

Fixed Operating Costs: Costs other than those associated with capital investment that do not vary with the operation such as maintenance and payroll.

Fossil Fuel: Any naturally occurring organic fuel, such as coal, crude oil, and natural gas.

Fossil Fuel Plant: A plant using coal, petroleum, or gas as its source of energy.

Fuel: Any substance that can be burned to produce heat; also, materials that can be fissioned in a chain reaction to produce heat.

Fuel Expenses: These costs include the fuel used in the production of steam or driving another prime mover for the generation of electricity. Other associated expenses include unloading the shipped fuel, and all handling of the fuel up to the point where the fuel enters the first boiler plant bunker, hopper, bucket, tank or holder in the boiler-house structure.

Gas: Includes natural gas, coke-oven gas, blast-furnace gas, and refinery gas. Manufactured gas is reported as natural gas on FERC Form 423. (See Natural Gas.)

Gas-Turbine Plant: A plant in which the prime mover is a gas turbine. A gas turbine consists typically of an axial-flow air compressor, one or more combustion chambers where liquid or gaseous fuel is burned and the hot gases are passed to the turbine; where the hot gases expand to drive the generator and then are used to run the compressor.

Generation: The process of producing electric energy by transforming other forms of energy; also, the amount of electric energy produced, expressed in kilowatthours. (See Electric Plant, Energy.)

Generator: A machine that converts mechanical energy into electrical energy.

Geothermal Plant: A plant in which the prime mover is a steam turbine. The turbine is driven either by steam produced from hot water or by natural steam that derives its energy from heat found in rocks or fluids at various depths beneath the surface of the earth. The energy is extracted by drilling and/or pumping.

Gigawatthour (GWh): One billion watthours. (See Watthour.)

Gross Generation: The total amount of electric energy produced by a generating station or stations, measured at the generator terminals. (See Generation, Electric Plant.)

Gross Head: A dam's maximum allowed vertical distance between the upstream's surface water (headwater) forebay elevation and the downstream's surface water (tailwater) elevation at the tail-race for reaction wheel dams or the elevation of the jet at impulse wheel dams during specified operation and water conditions. (See Design Head, Head.)

Head: The product of the water's weight and a usable difference in elevation gives a measurement of the potential energy possessed by water. (See Design Head.)

Heat Rate: A measure of generating station thermal efficiency, generally expressed in Btu per net kilowatthour. It is computed by dividing the total Btu content of fuel burned for electric generation by the resulting net kilowatthour generation. (See Btu, British Thermal Unit.)

Heavy Oil: The fuel oils remaining after the lighter oils have been distilled off during the refining process. Except for start-up and flame stabilization, virtually all petroleum used in steam plants is heavy oil.

Historical Plant Cost of Equipment: The charges for equipment assigned to power production include: the net purchased price thereof; sales taxes; investigation and inspection expenses necessary for such purchases, any expenses of transportation when borne by the utility; labor employed charges; materials and supplies consumed; and expenses incurred by the utility in unloading and placing the equipment in readiness to operate. (See Electric Plant.)

Historical Plant Cost of Land and Land Rights: The cost of land purchased or the fees paid by the utility for rights, interests, and privileges to be held by the utility in land owned by others. The types of rights acquired include leaseholds, easements, water and water power rights, rights-of-way, and other like interests.

Historical Plant Cost of Plant: The net cumulative-to-date actual outlays or expenditures for land and land rights, structures and improvements, and equipment for a facility. When the consideration given for property is other than cash, the value of such consideration is determined on a cash basis. These expenditures represent the capital cost for the years in which the expenditures were made.

Historical Plant Cost of Structures and Improvements (Expenses): The cost of all buildings and facilities to house, support, or safeguard property or persons, including all fixtures permanently attached to and made a part of buildings. Also includes the cost incurred in connection with the first clearing and grading of land and rights-of-ways.

Hydraulic Head: The distance between the respective elevations of the upstream water surface (headwater) above and the downstream surface water (tailwater) below a hydroelectric power plant. (See Design Head.)

Hydroelectric Energy: The production of electricity from kinetic energy in flowing water. (See Energy.)

Hydroelectric Plant: A plant in which the turbine generators are driven by falling water.

Hydroelectric Power: The harnessing of flowing water to produce mechanical or electrical energy. (See Hydroelectric Energy, Hydroelectric Plant.)

Hydroelectric Project: The complete development of a hydroelectric power site. This including dams, reservoirs, transmission lines and accessories needed for the maintenance and operation of the powerhouse and any other hydroelectric plant support facilities. (See Hydroelectric Plant.)

Incremental Energy Costs: The additional cost of producing and/or transmitting electric energy above some previously determined base cost.

Installed Nameplate Capacity: The full-load continuous rating of a generator, prime mover, or other electrical equipment under specified conditions as designated by the manufacturer. Installed nameplate capacity is usually indicated on a nameplate attached physically to the equipment. Installed station capacity does not include auxiliary or house units.

Internal Combustion Plant: A plant in which the prime mover is an internal combustion engine. An internal combustion engine has one or more cylinders in which the process of combustion take place, converting energy released from the rapid burning of a fuel-air mixture into mechanical energy. Diesel or gas-fired engines are the principal types used in electric plants. The plant is usually operated during periods of high demand for electricity.

Joint-Use Facility: A multiple-purpose hydroelectric plant that serves more than one purpose. An example is a dam that stores water for both flood control and power production. (See Hydroelectric Plant, Reservoir.)

Kilowatthour (kWh): One thousand watthours. (See Watthour.)

Light Oil: Lighter fuel oils distilled off during the refining process. Virtually all petroleum used in internal combustion and gas-turbine engines is light oil.

Lignite: Lignite, the lowest rank of coal, is brownish black and has a high moisture content, sometimes as high as 45 percent. It tends to disintegrate when exposed to the weather. The heat content of lignite ranges from 9 to 17 million Btu per ton as received and averages about 14 million Btu per ton. The ignition temperature is approximately 600 degrees Fahrenheit. Lignite is mined in California, Louisiana, Montana, North Dakota, and Texas, and is used mainly to generate electricity in power plants that are relatively close to the mines.

Low Head: Vertical difference of 100 feet or less in the upstream surface water elevation (headwater) and the downstream surface water elevation (tailwater) at a dam. (See Design Head, Dam.)

Maintenance of Electric Plant (Expenses): The cost of labor, materials used, and expenses incurred in the maintenance of an electric plant, which includes engines and engine-driven generators, turbogenerator units, and accessory electric equipment.

Maintenance Expenses: That portion of operating expenses consisting of labor, materials, and other direct and indirect expenses incurred for preserving the operating efficiency and/or physical condition of utility plants used for power production, transmission, and distribution of energy. (See Accounting System.)

Maintenance of Boiler Plant (Expenses): The cost of labor, material, and expenses incurred in the maintenance of a steam plant. Includes furnaces, boilers, coal, and ash-handling and coal-preparation equipment, steam and feed water piping, boiler apparatus and accessories used in the production of steam, mercury or other vapor, to be used primarily for generating electricity. The point at which electric steam plant is distinguished from electric plant is defined as follows:

1. 1. Inlet flange of throttle valve on prime mover. 2. Flange of all steam extraction lines on prime mover. 3. Hotwell pump outlet on condensate lines. 4. Inlet flange of all turbine-room auxiliaries. 5. Connection to line side of motor starter for all boiler-plant equipment.

Maintenance of Miscellaneous Plant (Expenses): The cost of labor, materials, and expenses incurred in the maintenance of electric plant. Includes engines and engine-driven generators, turbogenerator units, and accessory electric equipment.

Maintenance of Structures (Expenses): The cost of labor, materials, and expenses incurred in maintenance of power production structures. Structures include all buildings and facilities to house, support, or safeguard property or persons.

Maintenance Supervision and Engineering (Expenses): The cost of labor and expenses incurred in the general supervision and direction of the maintenance of power generation stations. The supervision and engineering included consists of the pay and expenses of superintendents, engineers, clerks, other employees, and consultants engaged in supervising and directing the maintenance of each utility function. Direct supervision and engineering of specific activities, such as fuel handing, boiler room operations, generator operations, etc., are charged to the appropriate accounts.

Maximum Streamflow: The maximum rate of flow of water past a given point during a specified period.

Mcf: One thousand cubic feet.

Median Streamflow: The middle rate of flow of water past a given point for which there have been several greater and lesser rates of flow occurring during a specified period.

Median Water Condition: The middle precipitation and run-off condition for a distribution of water conditions that have happened over a long period of time. Usually determined by examining water supply record of the period in question.

Megawatthour (MWh): One million watthours. (See Watthour.)

Mill: A monetary cost and billing unit used by utilities; it is equal to 1/1000 of the U.S. dollar (equivalent to 1/10 of 1 cent).

Minimum Streamflow: The minimum rate of flow of water past a given point during a specified period.

MMcf: One million cubic feet.

Natural Gas: A naturally occurring mixture of hydrocarbon and nonhydrocarbon gases found in porous geological formations beneath the earth's surface, often in association with petroleum. The principal constituent is methane.

Natural Streamflow: The rate of flow of water past a given point of an uncontrolled stream, or regulated streamflow adjusted to eliminate the effects of reservoir storage or upstream diversions at a set time interval.

Net Generation: Gross generation less plant use, measured at the high-voltage terminals of the station's step-up transformer. The energy required for pumping at pumped-storage plants is regarded as plant use and must be deducted from the gross generation. (See Generation, Electric Plant.)

Net Head: The gross head minus all hydraulic losses except those chargeable to the turbine. (See Design Head, Gross Head.)

Net Summer Capability: The steady hourly output which generating equipment is expected to supply to system load exclusive of auxiliary power as demonstrated by test at the time of summer peak demand.

North American Electric Reliability Council (NERC): A council formed in 1968 by the electric utility industry to promote the reliability and adequacy of bulk power supply in the electric utility systems of North America. NERC consists of nine regional reliability councils and encompasses essentially all the power systems of the contiguous United States, Canada, and some in Mexico. The data summarized by NERC regions in this publication are limited to that portion applicable to the contiguous United States, thereby excluding that portion of NERC data applicable to Alaska, Hawaii, Canada, and Mexico. The NERC Regions are:

ECAR - East Central Area Reliability Coordination Agreement

ERCOT - Electric Reliability Council of Texas

MAIN - Mid-America Interconnected Network

MAAC - Mid-Atlantic Area Council

MAPP - Mid-Continent Area Power Pool

NPCC - Northeast Power Coordinating Council

SERC - Southeastern Electric Reliability Council

SPP - Southwest Power Pool

WSCC - Western Systems Coordinating Council

Nuclear Fuel: Fissionable materials that have been enriched to such a composition that when placed in a nuclear reactor will support a self-sustaining fission chain reaction, producing heat in a controlled manner for process use.

Nuclear Power Plant: A plant in which the prime mover is a steam turbine. The steam used to drive the turbine is produced by a heat transfer from the reactor vessel during the period when the nuclear fuel is undergoing fission.

Nuclear Reactor: A device in which a fission chain reaction can be initiated, maintained, and controlled. Its essential components are a vessel containing a core with fissionable fuel, a moderator for the fission chain reaction, and a control system.

Operation and Maintenance Expenses: Operation expenses are expenses which are associated with the operation of a facility such as supervision and engineering expenses and facility- related operating expenses; maintenance expenses are that portion of expenses consisting of labor, materials, and other direct and indirect expenses incurred for preserving the operating efficiency or physical condition of utility plants which are used for power production, transmission and distribution of energy.

Operating Expenses: Expenses related to utility operations, which include operation and maintenance expenses, provisions for depreciation and amortization, taxes other than income taxes, income taxes, provisions for deferred income taxes, income taxes deferred in prior years--credit and investment tax credit adjustments--net. (See Accounting System.)

Operation Expenses: The components of power production expenses that incur cost for operations that are directly related to producing electricity. The major item is almost always fuel that has to be burned to generate the electricity.

Operation Supervision and Engineering (Expenses): These expenses include the cost of labor and expenses incurred in the general supervision and direction of the operation of power generation stations. The supervision and engineering costs consists of the pay and expenses of superintendents, engineers, clerks, other employees and consultants engaged in supervising and directing the operation of each utility function. Direct supervision and engineering of activities, such as fuel handling, boiler room operations, generator operations are charged to the appropriate accounts.

Other Gas: Includes manufactured gas, coke-oven gas, blast-furnace gas, and refinery gas. Manufactured gas is obtained by distillation of coal, by the thermal decomposition of oil, or by the reaction of steam passing through a bed of heated coal or coke. (See Natural Gas)

Peak Load: The maximum load during a specified period of time.

Peak Load Plant: A plant usually housing old, low-efficiency steam units, gas turbines, diesels, or pumped-storage hydroelectric equipment normally used during the peak-load periods.

Peaking Capacity: Capacity of generating equipment normally operated during the hours of highest daily, weekly, or seasonal loads. Some generating equipment may be operated at certain times as peaking capacity and at other times to serve loads on a 'round-the-clock basis. (See Peak Load.)

Petroleum: A mixture of hydrocarbons existing in the liquid state found in natural underground reservoirs, often associated with gas. Petroleum includes Fuel Oil 2, 4, 5, 6, topped crude, kerosene, and jet fuel. (See Petroleum (Crude Oil.))

Petroleum Coke: A residue, high in carbon content and low in hydrogen, that is the final product of thermal decomposition in the condensation process in cracking. This product is reported as marketable coke or catalyst coke. The conversion factor is 5 barrels (of 42 U.S. gallons each) per short ton.

Petroleum (Crude Oil): A naturally occurring, oily, flammable liquid composed principally of hydrocarbons. Crude oil is occasionally found in springs or pools but usually is drilled from wells beneath the earth's surface.

Plant: A station at which are located prime movers, electric generators, and auxiliary equipment for converting mechanical, chemical, and/or nuclear energy into electric energy. A station may contain more than one type of prime mover. Electric utility plants exclude stations that satisfy the definition of qualifying facility under the Public Utility Regulatory Policies Act of 1978.

Plant Hours Connected to Load: The number of hours the plant is synchronized to load over a time interval usually of 1 year. (See Load (Electric).)

Plant Use: The electric energy used in the operation of a plant. Included in this definition is the energy required for pumping at pump-storage plants.

Plant-Use Electricity: The electric energy used in the operation of a plant. This energy total is subtracted from the gross energy production of the plant; for reporting purposes the plant energy production is then reported as a net figure. The energy required for pumping at pumped-storage plants is by definition subtracted, and the energy production for these plants is then reported as a net figure. (See Combined Pumped-Storage Plant, Pumped-Storage Hydroelectric Plant, Pure Pumped-Storage Hydroelectric Plant.)

Pondage: The amount of water stored behind a hydroelectric dam of relatively small storage capacity; the dam is usually used for daily or weekly control of the flow of the river.

Powerhouse: A structure at a hydroelectric plant site that contains the turbine and generator. (See Hydroelectric Power, Generator, Turbine.)

Power Production Plant: All the land and land rights, structures and improvements, boiler or reactor vessel equipment, engines and engine-driven generators, turbogenerator units, accessory electric equipment, and miscellaneous power plant equipment are grouped together for each individual facility.

Price: The amount of money or consideration-in-kind for which a service is bought, sold, or offered for sale.

Prime Mover: The engine, turbine, water wheel, or similar machine that drives an electric generator.

Production (Electric): Act or process of producing electric energy from other forms of energy; also, the amount of electric energy expressed in watthours (Wh).

Production Expenses: Costs incurred in the production of electric power, and conforming to the accounting requirements of the Operation and Maintenance Expense Accounts of the FERC Uniform System of Accounts.

Propane: A heavy, colorless gas found in natural gas and petroleum.

Pumped-Storage Hydroelectric Plant: A plant that usually generates electric energy during peak-load periods by using water previously pumped into an elevated storage reservoir during off-peak periods when excess generating capacity is available to do so. When additional generating capacity is needed, the water can be released from the reservoir through a conduit to turbine generators located in a power plant at a lower level.

Pure Pumped-Storage Hydroelectric Plant: A plant that produces power only from water that has previously been pumped to an upper reservoir.

Rate Base: The value of property upon which a utility is permitted to earn a specified rate of return as established by a regulatory authority. The rate base generally represents the value of property used by the utility in providing service and may be calculated by any one or a combination of the following accounting methods: fair value, prudent investment, reproduction cost, or original cost. Depending on which method is used, the rate base includes cash working capital, materials and supplies, and deductions for accumulated provisions for depreciation, contributions in aid of construction, customer advances for construction, accumulated deferred income taxes, and accumulated deferred investment tax credits.

Regulated Streamflow: The rate of flow past a given point during a specified period that is controlled by reservoir water release operations.

Reservoir: A body of water collected and stored in a natural or artificial lake.

Revenue Requirement: The sum of the estimated operation and maintenance expenses, taxes, depreciation, and a reasonable return on an appropriate rate base needed to cover the cost of capital invested in the utility company.

Reversible Turbine: A hydraulic turbine, normally installed in a pumped-storage plant, which can be used alternatively as a pump or as an engine, turbine, water wheel, or other apparatus that drives an electrical generator. (See Pump-Storage Hydroelectric Plant, Turbine.)

Run-of-River Hydroelectric Plant: A low-head plant using the flow of a stream as it occurs, and having little or no reservoir capacity for storage. (See Hydroelectric Power.)

Run-off: That portion of the precipitation that flows over the land surface and ultimately reaches streams to complete the water cycle. Melting snow is an important source of this water as well as all amounts of surface water that moves to streams or rivers through any given area of a drainage basin. (See Drainage Basin.)

Short Ton: A unit of weight equal to 2,000 pounds.

Single-Purpose Project: A hydroelectric project constructed only to generate electricity. (See Hydroelectric Power.)

Station (Electric): A plant containing prime movers, electric generators, and auxiliary equipment for converting mechanical, chemical, and/or nuclear energy into electric energy.

Steam Expenses: The cost of labor, materials, and other expenses incurred in production of steam for electric generation; include all of the handling and preparing fuel beginning at the point where the fuel enters the first boiler plant bunker, hopper, tank, or holder of the boiler-house structure.

Steam from other Sources: Steam purchased, transferred from another department of the utility, or acquired from others under a joint facility operating agreement.

Steam Transferred-Credit: The expenses of producing steam are charged to others or to other utility departments under a joint operating arrangement.

Streamflow: The rate at which water passes a given point in a stream, usually expressed in cubic feet per second.

Subbituminous Coal: Subbituminous coal, or black lignite, is dull black and generally contains 20 to 30 percent moisture. The heat content of subbituminous coal ranges from 16 to 24 million Btu per ton as received and averages about 18 million Btu per ton. Subbituminous coal, mined in the western coal fields, is used for generating electricity and space heating.

System (Electric): Physically connected generation, transmission, and distribution facilities operated as an integrated unit under one central management, or operating supervision.

Thermal: A term used to identify a type of electric generating station, capacity, capability, or output in which the source of energy for the prime mover is heat.

Turbine: A machine for generating rotary mechanical power from the energy in a stream of fluid (such as water, steam, or hot gas). Turbines convert the kinetic energy of fluids to mechanical energy through the principles of impulse and reaction, or a mixture of the two.

Uranium: A heavy, naturally radioactive, metallic element with atomic number 92. The two isotopes that occur most frequently are Uranium-235 and Uranium-238. Uranium-235 is the only isotope existing in nature in any appreciable extent that is fissionable by thermal neutrons. Uranium is the basic raw material of nuclear energy. (See Nuclear Fuel.)

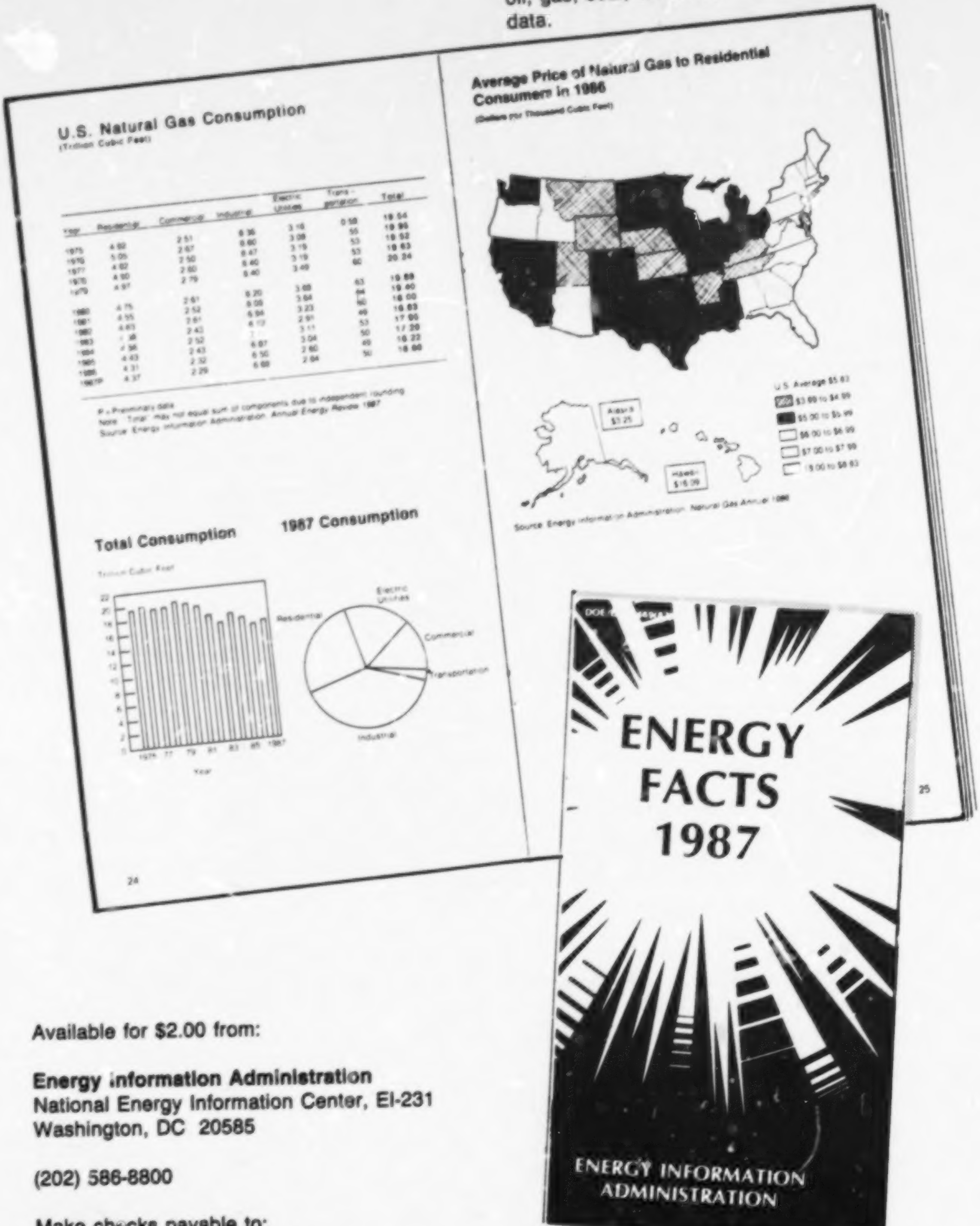
Water conditions: The status of the water supply and associated water in pondage and reservoirs at hydroelectric plants.

Waterway: A river, channel, canal, or other naviagable body of water used for travel or transport.

Watthour (Wh): An electrical energy unit of measure equal to 1 watt of power supplied to, or taken from, an electric circuit steadily for 1 hour.

Get the facts!

A quick reference to U.S. and international oil, gas, coal, electricity, and nuclear energy data.



U.S. Natural Gas Consumption

(Trillion Cubic Feet)

Average Price of Natural Gas to Residential Consumers in 1986

(Dollars per Thousand Cubic Feet)

Total Consumption

1987 Consumption

Residential
Electric Utilities
Commercial
Transportation
Industrial
Alaska $3.25
Hawaii $16.09
24
25
ENERGY FACTS 1987
ENERGY INFORMATION ADMINISTRATION

Available for $2.00 from:

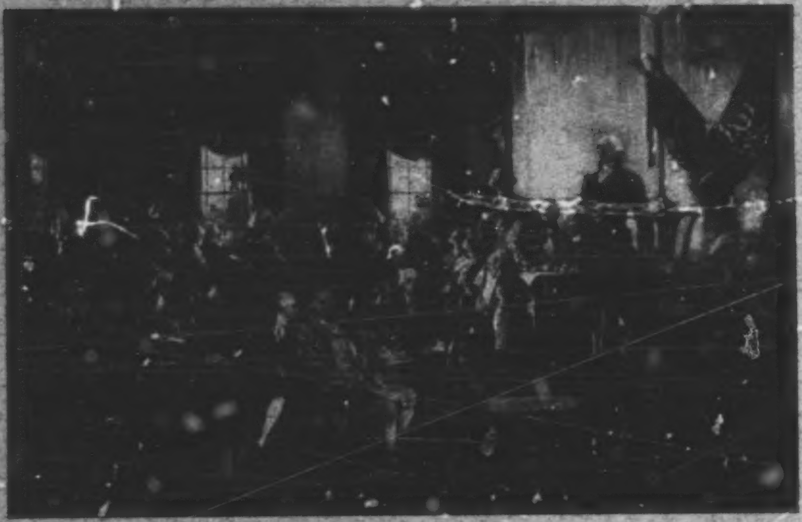
Energy Information Administration
National Energy Information Center, EI-231
Washington, DC 20585

(202) 586-8800

Make checks payable to:
U.S. Government Printing Office

AFTER THE DECLARATION OF INDEPENDENCE OUR FOUNDING FATHERS WROTE SOMETHING EVEN MORE IMPORTANT.

Ten years after the signing of the Declaration of Independence our founding fathers created what historians have called the greatest single document struck off by the hand and mind of man.



Our founding fathers created the Constitution of the United States.

For the first time in history, power was granted by the people to the government, and not by the government to the people.

The freedom unleashed by the Constitution allowed Americans to develop their talents and abilities to the fullest. And attain what is now known the world over as the *American Dream.*

As we commemorate the Bicentennial of the Constitution, there is no better way for you as an American to reaffirm the principles for which our country stands than to learn more about the Constitution.

The words we live by.

THE CONSTITUTION

The words we live by

To learn more about the Constitution write: Constitution, Washington, D.C. 20599. The Commission on the Bicentennial of The U.S. Constitution.

Energy Information Administration
U.S. Department of Energy
Forrestal Building, EI-231
Washington, DC 20585

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

Return Postage Guaranteed

FOURTH-CLASS MAIL
POSTAGE & FEES PAID
U.S. DEPT. OF ENERGY
PERMIT NO. G-20